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An Overview of Transparency at the Federal Trade Commission: Generalities and Innovations in Merger Analysis

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I. INTRODUCTION

The Federal Trade Commission's ("FTC") 2004 horizontal merger data release initiated a research program to increase the transparency associated with merger enforcement.² To tabulate the structural (e.g., Herfindahls, significant rivals, and entry conditions) and expected performance (e.g., customer concerns and hot documents) data required for the release, Bureau of Economics staff collected, organized, and reviewed files for every merger in which a second request was issued during the fiscal years 1996-2003. Supplemental work collected some data back to fiscal year 1993 and the later updates of the data filled out the file through fiscal year 2008. The collection of this unique research data set, along with the tabulation of new data (e.g., natural experiments, homogeneous goods structure, and customer sophistication) enabled a wide range of follow-on studies. The goal of the overall project is to explore the Federal Trade Commission's merger enforcement record in a search for empirical generalities and innovations. Insights into the analytical structures of merger analysis are likely to benefit a wide range of interested parties (attorneys, executives, bureaucrats, and academics).

This paper presents an overview of the various studies using the structure of the Merger Guidelines to organize the presentation.³ Thus, the discussion starts with market definition and concentration, moves on to the competitive effects analysis, then entry, and finally, efficiencies. Conclusions are drawn for how the process appears to work and innovative ideas are highlighted.⁴ When relevant, suggestions are made for future improvements in merger analysis.

¹ Federal Trade Commission, . I would like to thank everyone in FTC management who supported the project over the last five years, as well as the staffs of both the Bureau of Competition and the Bureau of Economics (past and present) whose hard work generated the data for the analysis. Special thanks go to the co-authors who worked on some of the papers and commented on others. Finally, I'd like to thank the research assistants whose hours of toil made the data collection possible. The analyses and conclusions set forth in this paper are those of the author and do not necessarily represent the views of the Commission, any individual Commissioner, or any Commission Bureau.

² The Commission released tabulations of market concentration statistics in February 2004. The report is reproduced in Appendix C of Coate and Ulrick (2005). For an update through fiscal year 2007, *see* Federal Trade Commission (2008).

³ A total of 16 studies are directly or indirectly related to this review. Drafts of the surveyed papers are available at http://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=340213. The working paper version of this paper contains enhanced abstracts for the studies (*see*, <http://ssrn.com/abstract=1111687>). Suggestions for further research are welcome.

⁴ This presentation is not meant to suggest that merger analysis is a pure sequential process starting with market definition and ending with efficiencies. During an investigation, staff updates their analyses as necessary to reflect the current understanding of market realities (e.g., a better understanding of competitive effects could lead the staff to adjust the market definition). The process is best considered iterative, eventually converging to a final recommendation. Most final staff analyses will read as if the study was sequential, with only an occasional evaluation

Caution must be used in interpreting the results, because the research design is limited: first to the matters reviewed by the FTC; and second to subsets of FTC cases for which sufficient information was available for study. Thus, industries reviewed by the Department of Justice (“DOJ”) are not represented.⁵ Moreover, certain industries (e.g., oil and grocery) are under-represented in most of the analyses, because mergers in these industries often involve a large number of geographic market overlaps, thereby requiring a broad-brush discussion that often limits the scope of the market-specific analysis. Further caution is appropriate, because the project is based on the conclusions identified by the staff. While statistical analysis should minimize the impact of random error, the staff’s analytical conclusions were not generally reviewed to correct for error naturally associated with any human analysis.⁶ However, attempts were made to ensure that the results are robust, as variables were defined using different methodologies (e.g., use of Bureau of Competition data or aggregation of both Bureau of Competition and Economics data) and statistical analyses were run on different data sub-samples.⁷

II. MARKET DEFINITION AND CONCENTRATION

Market definition under the Merger Guidelines is based on the hypothetical monopolist “small, but significant and non-transitory increase in price” (“SSNIP”) test. Although examples of relevant evidence are given, the bulk of the Guidelines’ presentation focuses on the generic SSNIP methodology.⁸ Product differentiation is implicit in the structure of the hypothetical monopolist test, but no real attempt is made to link the differentiation to real world implementation problems. Given a market definition, the Guidelines propose the Herfindahl index as a measure of market concentration and then posit the well-known structural presumption. While *per se* structuralism has been obsolete for a generation, the Guidelines retain some structural concepts to define safe harbors virtually immune from challenge.

By looking at how markets are defined, it is possible to build an understanding of the real world application of the Guidelines’ SSNIP construct. In a merger investigation, the first question focuses on how competition actually works. A range of informal economic modeling structures (i.e., homogeneous good, customized good, vertical differentiation, spatial differentiation, and variety differentiation) is implicitly applied to organize this thought process.⁹ The staff review generally identifies either a product or geographic market issue as

presenting a simultaneous analysis. Conclusionary statements make it clear that the aggregate impact of the various Guidelines factors drove the policy result. While evidence that precludes competitive concern justifies the truncation of an investigation, the full Guidelines analysis is necessary to support an enforcement action.

⁵ In Coate (2009a), 75 percent of the sample fell into the automotive, branded consumer, computer, chemical, aerospace, hospital, drug & device, oil & energy, and retail sectors, with most of the cases concentrated in the FTC’s big 6: branded consumer goods, chemicals, hospitals, drugs & devices, oil & energy, and retail.

⁶ Herfindahls were corrected for obvious computational errors under the assumption that these errors would be noticed and the final decision based on the correct information. No other analyses outside the bounds of a conventional reading of the Merger Guidelines were corrected.

⁷ And of course, “error” is often subjective, because different economists, looking at the same data, could reach different conclusions.

⁸ For an overview on market definition, see Werden (2003) or Carlton (2007).

⁹ Coate (2006) and Coate & Fischer (2008).

most in need of careful analysis. In roughly half the studies, the basic understanding of the facts leads inexorably to a specific market definition.¹⁰ In half of the remaining matters (roughly a quarter of the sample), economic evidence is available to support a specific market definition.

While the bulk of the evidence is related to critical loss analysis; natural experiments and pattern analysis (e.g., Elzinga-Hogarty, price correlations) affect some market studies. It is rare to see supply-side analysis support a broad market, while the variable (customized) SSNIP construct is virtually never used.¹¹ Price discrimination is considered relevant in 11 matters, including the three markets in which supply-side flexibility would have otherwise broadened the market.¹² At the end of the market analysis, the staff has identified a market (usually, although not always, a narrow market),¹³ along with a specific homogeneous or differentiated good structure within which to build the competitive effects analysis.

The staff reviews highlight a number of interesting innovations:

- First, the general market definition methodology does not appear to follow the literal reading of the Guidelines by testing a sequential set of potential market definitions. Instead, staff appears to organize the evidence to select a test market and an alternative broader market.¹⁴ If the SSNIP is considered profitable, the narrow test market is accepted – while if the SSNIP is not profitable, the broader market is used by default.
- Second, the files show how critical loss analysis can be performed on differentiated goods when some index for market output is identifiable.¹⁵ In some cases, the differentiation assumption is relaxed to generate a composite good (hypothetically, ounces of ready-to-eat breakfast cereal) and the loss of sales balanced against the additional profits from a market-wide SSNIP. Numerous different styles of analysis are used to define the actual loss required to complete the critical loss test.
- Third, the staff attempts to supplement Elzinga-Hogarty or price correlation studies with other evidence (i.e., problematic critical loss or weak natural experiment studies) implicitly addressing the well-known complications associated with these pattern

¹⁰ This paragraph draws from the results of Coate & Fischer (2008).

¹¹ The variable (customized) SSNIP allows the analyst to vary the price increase imposed by each firm in the market to customize the market definition to a unilateral effects concern. Ordoover & Willig (1993). For a critical discussion of the variable SSNIP, *see*, Coate & Simons (2009).

¹² Coate & Fischer (2008) at 1057.

¹³ Coate & Simons show critical loss methodologies that make use of diversion ratios will likely define very narrow markets for almost any value of the margin. Coate & Simons (2009). For the standard approach to critical loss, *see* Harris & Simons (1989), and for the critiques, *see* Katz & Shapiro (2003) and Farrell & Shapiro (2008).

¹⁴ *See*, Coate (2006) and Coate & Fischer (2008). If the staff followed the explicit Guidelines structure, one would expect to see more “close calls” in which multiple market possibilities are discussed and options presented. Instead, the analysis virtually always discusses two relevant choices. On occasion, more perspective is provided for measuring the market shares behind the Herfindahl statistic.

¹⁵ The remainder of the paragraph is based on the Coate & Fischer (2008). This paper addresses the critical loss debate and notes diversions may not be stable in response to an across the board price increase. For a more detailed discussion of parameter stability, *see* Coate & Simons (2009).

analysis methodologies. Overall, fact-based market definition remains a challenge to regulators, but staff strives to validate their market definition.¹⁶

Staff memos follow the Guidelines in defining market share statistics, along with Herfindahls. Tabulations of these results are presented in the first data release (with updates to 2005 and then 2007); the reports highlight the fact that most investigations generate statistics well above the critical Guidelines' Herfindahl level of 1800.¹⁷ In effect, the Guidelines' critical statistics generally serve as a safe harbor, although mergers in the oil industry are challenged at the classic 1400-1800 level (and mergers in the grocery retailing business are challenged at slightly higher levels).

The concept of the significant competitor is a key structural innovation.¹⁸ Implicitly defined as "a firm whose independence could affect the ability of the merged firms to achieve an anticompetitive outcome,"¹⁹ significant competitors are the logical outgrowth of the unilateral model of concern discussed below. The index could also have some value in coordinated interaction theories as long as it is supplemented with additional structural variables (i.e., an index for market leadership). While the memos do not necessarily use the term "significant competitor," the style of the staff analysis defines the concept in all but these words.²⁰

A few coordinated interaction matters make use of "numbers-equivalent" analysis to compute Herfindahls, in which all firms are credited with equal shares, both in the pre- and post-merger worlds.²¹ This concept is relevant when each rival has an ability to significantly increase output and thus would need to be included in a hypothetical cartel. For example, in dynamic markets it may be necessary to consider all significant competitors to be equal, if each firm has the same potential to innovate. Numbers-equivalent analyses are also observed in some unilateral effects investigations where the competitive concern applies various auction models.

¹⁶ The requirement to define markets for differentiated products is one of the most controversial issues in merger analysis. While ex-post evidence of anticompetitive effects could negate the need for a market, market definition is still helpful in evaluating the effects evidence. Simply assuming the effects evidence is correctly evaluated appears problematic.

¹⁷ See, Coate & Ulrick (2005) at Appendix C. Recall that the data set includes only matters in which the FTC issued a second request. Merger investigations with Herfindahls below 1800 may be closed in the initial 30 day waiting period.

¹⁸ See, Coate & Ulrick (2006), Coate (2005b), and Coate (2009c).

¹⁹ Coate & Ulrick (2005) at Appendix C, page 51.

²⁰ Merger reviews generally highlight the identities of the firms important to the competitive process.

²¹ See, Coate (2008b). The numbers-equivalent convention defines the mapping between the number of significant rivals and the Herfindahl defined by the equal share assumption. A reduction in the number of rivals increases the Herfindahl from one number on this scale to the next. Unlike standard Herfindahl analysis, doubling the product of the market shares of the merging parties does not generate the change in the number-equivalent Herfindahl. For example, a four-to-three numbers-equivalent merger implies a Herfindahl moving from 2500 to 3333.

III. COMPETITIVE EFFECTS ANALYSIS

The Merger Guidelines advance two theories of competitive concern. Unilateral effects analysis applies when the merged firm can raise price independently of its rivals and coordinated interaction is relevant when some form of cooperation is needed before the merged firm can adversely affect the market.²² The Guidelines accept the responsibility to move beyond the numbers and tell an actual anticompetitive story linked to the theory of competitive concern. Product differentiation is clearly important, but the Guidelines do not mandate one style of competitive analysis for differentiated products.

The underlying modeling style of the market (i.e., homogeneous goods or differentiated products) influences, but does not control, the specific style of merger review. While staff analyses often discuss both coordinated interaction and unilateral effects analyses, it is best to consider this an “in the alternative analysis.”²³ Given an understanding of the effect of a merger on competition, one or the other analysis will almost always dominate.²⁴ With only two significant pre-merger competitors (a fact situation that virtually guarantees a very large Herfindahl statistic), mergers in both homogeneous and differentiated markets require the dominant firm variant of unilateral effects analysis, while three or more competitors complicates the discussion.²⁵ With three or more pre-merger rivals, the bulk of the homogeneous goods markets are evaluated with coordinated interaction, while the results are mixed for differentiated goods.²⁶ In a few situations, Commission staff differs on the appropriate theory of concern.²⁷

A. Coordinated Interaction

For collusion cases, a review of the files identifies a clear interest in high post-merger concentration; mergers increasing Herfindahls by at least 500 points to a level above 3000 are much more likely than not to be challenged. On the other hand, mergers leaving the Herfindahl

²² For unilateral analysis, commentaries include Landes & Posner (1981), Werden & Froeb (1996), Werden (1998), and Hausman & Leonard (1997), while for coordinated interaction *see*, Baker (2002) and Dick (2003).

²³ *See* Coate (2005b).

²⁴ It is conceivable that both analyses will be relevant, although relevant for different time periods of analysis. Possibly short run collusion could raise one set of concerns, while long run unilateral effects lead to a different analytical problem. *See*, Federal Trade Commission and U.S. Department of Justice (2006) at 17, (hereinafter Merger Commentary (2006)).

²⁵ Excluding the two-to-one dominant firm mergers leaves the analyst with more collusion cases than unilateral effects cases. In Bergman et al (2009), 70 coordinated interaction matters could be compared to 43 unilateral effects cases. Likewise in the Coate (2005b), 56 collusion cases would be compared to 29 unilateral investigations. For Coate (2009c), a total of 91 unilateral investigations were reviewed, in comparison to 129 coordinated interaction matters.

²⁶ In Coate (2009b), once the two-to-one mergers are excluded, the review identified coordinated interaction theories for 52 of the 68 matters studied with a homogeneous goods structure and 77 of the 152 matters studied with a differentiated goods structure. While investigations in differentiated product markets are much more likely to end in enforcement if a unilateral theory can be applied, collusion concerns are also regularly reviewed. For example, in the Commentary on the Guidelines, R.J. Reynolds/British American, a tobacco industry merger, is recognized as a coordinated interaction investigation even though the market is clearly differentiated. *See*, Merger Commentary (2006) at 19.

²⁷ In the Coate (2008a), six cases were identified in which the attorneys and economists differed on the theory of concern.

below 2400 (or imposing a change of less than 200 points) are rarely considered problematic.²⁸ Three models of competitive concern (“regime shift,” “maverick,” and “structuralist”) could be linked to the Guidelines’ stated concern with price increases that are “more likely,” or coordination that is “more complete.”²⁹ While the bulk of the investigations appear to apply a regime shift model, enforcement is relatively more likely when the matter can be characterized as structuralist or maverick, probably because these analyses are more likely to be supported by empirical evidence.³⁰

Statistical analysis identifies a significant effect for the post-merger Herfindahl on the enforcement probability and finds the effect could be decomposed into one variable for the number of significant competitors and another variable for the ratio of the share of the leading firm to its largest rival.³¹ This result suggests that some type of leadership model contributes to the collusion concerns. Customer sophistication, interacted with product homogeneity, makes enforcement less likely, while stand-alone product homogeneity adds to competitive concerns. Vertical issues and efficiencies generally make collusion findings statistically less likely; this result is not surprising, as more complex cost structures make coordinated pricing more difficult to accomplish.

B. Unilateral Concerns

Focusing on unilateral effects analysis, it is possible to draw a clear parallel to the EU concept of market dominance. In one study, 38 of 52 unilateral enforcement actions are characterized by the staff as dominant firm two-to-one mergers.³² Some form of closest competitor spatial analysis is used in most of the remaining cases, with a few matters studied with a more complex game-theoretic model. Closed matters generally apply the spatial style of analysis (only one two-to-one investigation was closed). Using a broader data set and a European (share-based) definition of dominance, another paper finds 88 of the 96 unilateral merger investigations would qualify as dominance cases.³³ A more extensive study of unilateral effects notes 86 of 177 matters are two-to-one mergers and another 50 are three-to-two transactions.³⁴ Considering the market shares associated with a data set of 177 unilateral effects transactions identifies EU dominance-related issues in between 153 and 163 of the 164 leading firm matters.³⁵ Thus, while some commentators claim that unilateral analyses have largely

²⁸ Coate (2006).

²⁹ See, Coate (2005b), Coate (2008b), and Coate & Ulrick (2008). A “regime shift” model posits the merger is likely to change the performance of the market from competitive to less than competitive. The “maverick” model is an example of a regime shift in which the loss of the maverick firm to merger is likely to lead to the less than competitive performance. A “structuralist” model postulates some on-going link between market concentration and performance, such that the merger is likely to lessen competition.

³⁰ Coate (2006).

³¹ The paragraph is based on results from the Coate (2008b).

³² The first part of the paragraph is based on the Coate (2006).

³³ Bergman et al (2009). The combined share of the merging parties could also be considered a key concentration variable, with the 35 percent cut-off considered the lower bound for concern (this data suggests unilateral concerns are not challenged by the staff when post-merger share does not exceed 35 percent).

³⁴ Coate (2009c).

³⁵ Coate (2009b).

replaced collusion concerns, the facts suggest that the bulk of these unilateral matters focus on leading firms and raise classic dominant firm/dominance issues.³⁶

The number of significant rivals has a strong effect on the likelihood of unilateral concerns.³⁷ Mergers to near monopoly almost always result in enforcement action and one study shows staff analyses of three-to-two mergers suggest a likelihood of enforcement of 67 percent. For mergers with more than three pre-merger rivals, the average enforcement probability is only 29 percent.³⁸ A larger sample generated similar results for two-to-one and three-to-two mergers, but noted enforcement was still also likely for four-to-three mergers.³⁹ Strong findings for entry impediments predict higher enforcement probabilities, while some evidence suggests that efficiencies reduce concerns. Customer sophistication or buyer power generally did not systematically reduce the probability of an enforcement action.⁴⁰

Shifting to a pure market share index shows enforcement actions are rarely taken under a unilateral effects theory when the post-merger share fails to exceed 35 percent.⁴¹ Possibly, when the post-merger share of the merged firm is not large (that is, not greater than 35 percent), the staff is uncomfortable with its ability to infer a concern from structure and the files generally lack natural experiment evidence to support a competitive concern for low share unilateral mergers.

C. Innovations in Competitive Effects Analysis

FTC merger analyses make use of evidence variables (natural experiments, validated customer complaints, and hot documents) to support an inference of competitive concern generated by the change in market structure.⁴² The review of files highlights the staff's desire to move beyond structuralism to "prove" their claim through a reference to exogenous facts in the investigational record. What we see is "hypothesis testing," as staff formulates a hypothesis on the competitive effect of the merger (based on the information in the record (i.e., internal documents, customer interviews, and economic analyses)) and then "tests" the hypothesis with exogenous evidence related to the likely outcome of the merger.⁴³ In effect, merger analysis

³⁶ Baker (2003).

³⁷ Coate (2005b), Bergman et al. (2009), Coate (2009c), Coate & Ulrick (2008) and Coate (2009a). The number of significant rivals is able to: (1) proxy the number of firms whose pricing choices need to be considered and (2) define the number of firms possibly able to reposition in response to a price increase. Thus, the variable appears theoretically superior to a market share alternative. In some specifications, the Rivals variable significantly predicts enforcement, while the share and change in Herfindahl variables do not.

³⁸ The enforcement ratios in the two sentences are based on results from the Coate (2006).

³⁹ Coate (2009c).

⁴⁰ Customer sophistication did not reduce the probability of enforcement in a couple of recent studies. (Coate (2009c) and Coate & Ulrick (2009)). However, the variable did have a negative effect on enforcement in Bergman et al. (2009), with a somewhat older sample of both collusion and unilateral mergers.

⁴¹ This discussion is based on the Coate (2009b). Theorists can easily define models to generate price effects at shares well below the 35 percent standard. The problem is the models must survive an attempt at falsification to be considered economic science (Coate & Fischer (2009)).

⁴² See, Coate (2005b), Coate (2006), Coate & Ulrick (2008), Coate (2008b), and Coate (2009c).

⁴³ For an explanation of why standard merger testimony should include evidence on the likely competitive effect of a merger, see Coate & Fischer (2009).

applies an experience-based “Folk Theorem” in which structural concerns are validated with performance evidence.⁴⁴ Three types of evidence play a role in the competitive analysis.

While the Merger Guidelines are relatively silent on evidence, the case files are not. The initial review highlights both customer complaints and hot documents. The FTC Transparency release defines both variables. Customer concerns must express a “credible concern that a significant anticompetitive effect would result” from the merger.⁴⁵ The weight of the evidence from the interviews affects this conclusion. Likewise, hot documents must “predict the merger will have an adverse price or non-price effect on competition.”⁴⁶ As a bottom line, customer complaints or hot documents are validated as part of the merger review process.

More in-depth review of the files isolates a range of economic analyses associated with natural experiments.⁴⁷ These analyses differ by theory of concern.⁴⁸ Four event classifications are identified for coordinated interaction concerns. The most obvious event involves evaluating actual market performance to show less-than-competitive behavior exists and then links it to some causative structural variable. Showing case-specific structuralism tends to suggest that a merger will be anticompetitive, because the transaction makes the structural conditions even less competitive.⁴⁹ Two other styles of analysis focus on special case considerations. In some markets, it is possible to demonstrate a relationship between a historical merger and poor market performance. If that change in structure affected performance, then another merger is likely to adversely affect performance. In other markets, it is possible to show that the market has remained relatively competitive due to the behavior of a maverick. This evidence is useful in confirming a maverick theory of violation. A final classification of events focuses on events in comparable markets. Here, the analysis must show both the event and the close similarity between the affected market and the market of concern.

For unilateral concerns, four different styles of event analyses show up in the files. One possible analysis links an earlier merger in the same market to an anticompetitive effect and therefore supports the competitive concern for a follow-on merger. An alternative analysis explores the effect of re-positioning on the market. If a merger partner has repositioned itself and materially affected competition, the loss of that independence might matter. A third analysis focuses on historical entry (exit) and links that change in structure to unilateral effects. Evidence showing a firm entered the market and improved the overall competitive environment suggests that the loss of the independence of that rival could adversely affect the

⁴⁴ The phrase “Folk Theorem” is simply an economic term of art used to describe a general understanding that just evolved over time. The Folk Theorem conclusion should not be read to suggest that every internal merger analysis presents the best theory, supported by the strongest evidence. Instead, the files, when read together, show the design of the enforcement system that is compatible with this goal. In any particular case, different analysts may have different views on particular facts and insights. If forced into court, the Commission staff needs a theory of violation and some supportive evidence. Respondents would have their own theory on the merger’s effect, along with their own take on the evidence. The court would decide.

⁴⁵ Coate & Ulrick (2005) at Appendix C, page 53.

⁴⁶ Coate & Ulrick (2005) at Appendix C, footnote 16.

⁴⁷ Useful analyses include Davis (2005), Coleman & Langenfeld (2008), and Johnson (2008).

⁴⁸ For a discussion of evidence in collusion and unilateral effects cases, *see*, Coate (2008b) and Coate (2009c). The detail of the analyses differs substantially from file-to-file.

⁴⁹ For some suggestions on how to evaluate competition, *see* Scheffman & Coleman (2003).

market. A fourth line of analysis addresses events in comparable markets. Again, these studies must show the event and a clear similarity between the analogous market and the market of concern. In all of these studies, care must be taken to account for alternative explanations for the observed behavior.⁵⁰

While not as prevalent in the files, evidence also serves to immunize a merger from concern.⁵¹ In some merger investigations, the customers support the transaction. By applying the same validation process as used for complaints, it is possible to isolate the matters in which the customers believe the market will benefit (i.e., efficiencies will lead to lower prices) from those in which only a specific customer will benefit. “Cold” documents are also reasonably straightforward, although only one cold document finding has been noted in the files. A merging party may have looked at a merger comparable to the one under review and documented the conclusion that the deal would not affect the market. Hence, it could be reasonable to consider this analysis as evidence that the merger in question is not anticompetitive.⁵² Natural experiments may also show a change in structure, comparable to the merger at issue, had no effect on the market. Or evidence may show that a maverick firm remains in the market to ensure competition. This evidence could serve to falsify an anticompetitive theory and thus reduce the probability of a competitive concern.⁵³

Customer sophistication (buyer power) analyses are also developed in the staff evaluations. The most striking results occur in homogenous goods industries reviewed with a collusion theory, where findings of customer sophistication materially reduce the probability of an enforcement action. In effect, it would appear that buyer power is thought to make it more difficult for some form of tacit collusion to allow suppliers to elevate or maintain prices above the competitive level. All the customers in the market would clearly benefit from this pro-competitive effect. In contrast, the evidence for sophistication is much weaker for unilateral effects cases. Here, it is harder to see how the customer forces price back to the competitive level. Possibly some direct evidence would be required in these matters.⁵⁴

Finally, the original transparency analysis is compatible with a “reduced-form” model of competition analysis for mergers involving a large number of competitive concerns in different product or geographic markets.⁵⁵ When faced with a double-digit list of competitive concerns

⁵⁰ Coate & Fischer (2009) describe systematic event analyses in which the analyst can collect data from a number of markets and perform a sophisticated econometric analysis to evaluate the impact of the merger on performance. These analyses can support either coordinated interaction or unilateral theories of concern. Alternative analyses evaluate opportunistic information discovered in the investigation.

⁵¹ Coate (2005b), Coate (2006), Coate & Ulrick (2008), and Coate (2009c).

⁵² Internal analysis showing continued competition in the market if the proposed merger is consummated would be much more difficult to validate as a cold document.

⁵³ The data collection process is clearly biased against finding evidence associated with competition, because the process only reviews memos written at the end of the second request investigation. If evidence turns up showing no competitive concern, the matter could be closed as a “quick look” and thus not be included in the data set. Moreover, evidence of continued competition is most likely to be found when some other exogenous condition (ease of entry, sophisticated customers) exists to preclude a competitive concern. Thus, even if the quick look memos were as detailed as the final memos, the evidence might not be recorded.

⁵⁴ Coate & Ulrick (2009) note court findings of buyer sophistication appear to reduce the probability of enforcement in merger litigation.

⁵⁵ See, Coate & Ulrick (2006).

and tight Hart-Scott-Rodino deadlines, it is very difficult, if not impossible, to undertake a detailed Guidelines' based analysis in each problematic market. Staff does the best it can; conducting aggregate cross-market analyses of various issues (i.e., entry, theory of concern, efficiencies) and, when possible, customizes the analysis to reflect facts in specific markets. However, it is just impossible to provide the same level of detailed study when a merger involves 10 drug markets or 15 wholesale gasoline markets.⁵⁶ Thus, the staff may apply a general structural analysis and generate enforcement recommendations.⁵⁷ While one can be concerned with regulatory short cuts, the data review finds the aggressive enforcement was industry, not case, related. Oil and grocery markets are simply subject to a tighter review.⁵⁸ Further review of this style of analysis would be useful.

IV. ENTRY UNDER THE MERGER GUIDELINES

The Merger Guidelines' recommended analysis studies the timeliness, likelihood, and sufficiency of entry to determine if entry is likely to deter or defeat an anticompetitive effect of concern.⁵⁹ Basic definitions are given for the three concepts, with timeliness linked to physical realities associated with actual entry, likelihood to the potential profitability of entry, and sufficiency to the ability of the timely, likely entry to offset the relevant competitive concern. The Guidelines' entry algorithm leaves the implementation details a little vague, although it notes that all the available evidence should be used.⁶⁰

The empirical studies of FTC enforcement confirm the near outcome-determinative effect of easy entry.⁶¹ If entry is not impeded, enforcement action is very unlikely under either a coordinated interaction or unilateral effects theory. Moreover, enforcement probabilities increase as the evidence associated with entry becomes stronger and stronger. This result holds for a number of different implementations of the barrier concept.

Entry analyses regularly address more than one style of entry (e.g., *de-novo* entry, fringe entry, product extension entry).⁶² As the facts related to each style of entry may differ, multiple analyses of the timeliness and likelihood questions are required. Then the styles of entry that

⁵⁶ While rules of thumb could be applied to identify both coordinated interaction and unilateral effects cases, detailed analysis to check the choice would be time consuming. If a broad statistical relationship between structure and outcome is postulated, a reduced form effect could be estimated. Interestingly, the number of rivals does not appear to be statistically significant in enforcement analyses limited to oil or grocery mergers, suggesting that these transactions are evaluated with a standard collusion theory. Coate & Ulrick (2005) at 18.

⁵⁷ If one market requires special attention, that deal can be studied as if it was a single overlap.

⁵⁸ Some evidence would generalize easier than other types of evidence. Customer complaints would almost certainly have to be market-specific, while natural experiments in a single market might be relevant to an entire class of markets.

⁵⁹ The Guidelines also mandate consideration of uncommitted entry. Although probably relevant in the initial decision to issue a second request, this supply-side analysis rarely justifies the broadening of markets in full investigations and when relevant, may be offset by price discrimination arguments (Coate (2008a)). Thus, the impact of uncommitted entrants must be considered in the standard entry analysis.

⁶⁰ Background information on entry is available in Coate & Langenfeld (1993) and Carlton (2004).

⁶¹ Coate & Ulrick (2006), Coate (2005b), Bergman et al (2009), Coate & Ulrick (2009), and Coate (2009).

⁶² The remainder of the section is based on the results of the Coate (2008a).

are both timely and likely must be passed through the sufficiency analysis to determine if the effect of timely, likely entry is sufficient to offset or deter the competitive effect of concern.

Timeliness analyses are often tightly linked to readily verifiable facts such as the time delays caused by regulation or construction schedules. Reputation issues may also delay entry. Likelihood analyses are often more problematic. While some situations (i.e., Stiglerian barriers, switching costs, Certificate of Need regulation) may render entry unlikely, many other cases exist in which the analyst must evaluate the viability of efficient-scale entry. In some cases, detailed data on both scale and sales opportunities exist; in other cases, the staff has evidence on branding, low profits, or declining market, but no clear evidence with which to balance scale and sales opportunities. These analyses are simply less dispositive than the timeliness considerations.

Sufficiency concerns are based on a range of special case considerations that affect the ability of timely, likely entry to ensure that the market remains competitive. Staff advances analyses related to specific inputs in short supply, the need for full product lines, and the importance of reputation, network economics, and the marginal impact of the fringe. Overall, barriers are identified in 109 of the 138 investigations studied, with more barrier findings for unilateral than coordinated interaction theories of concern.

Innovations in Entry Analysis

The entry analysis study also uncovers a few innovations. First, the staff closely reviews the files for evidence of actual (found in 55 files) and planned future (found in 46 files) entry. Either actual or planned entry evidence (found in 77 files) appears to make the staff more willing to conclude entry was easy (27 of the 29 easy entry findings fell into this sub-sample). Thus, real world entry evidence may play an important role as a check on the more theoretical entry analyses.

Second, the review of the files flags a few matters in which the timeliness analysis is adjusted to consider entry in progress. This generalization of the basic method is particularly important, because it occurred in industries with government-based entry impediments (e.g., pharmaceuticals). If the products in the development pipeline did not count, entry would rarely be timely in these markets.

Finally, the paper identifies a solution to the analytical difficulties associated with the likelihood of entry. In a few innovative reviews, staff presents net present value models of the entry decision, based either on available entry studies or pro-forma profitability models. Net present value analysis, if carefully implemented, should be able to determine if a firm could profitably (would) enter in response to a specific anticompetitive effect. All the required information should be available in the record of a complete investigation; the staff just needs to build the entry model.

V. EFFICIENCIES UNDER THE MERGER GUIDELINES

The Merger Guidelines require efficiencies to be valid, verified, and merger-specific before they are relevant to the overall competitive effects analysis. To justify an otherwise anticompetitive merger, the efficiencies must reverse the aggregate harm to consumers. In

effect, this appears to mean that efficiencies must prevent a loss in overall consumer welfare; social welfare considerations are not controlling.⁶³ Exactly how this analysis is undertaken is not clearly specified in the Guidelines.⁶⁴

To evaluate efficiencies, it is necessary to disaggregate the general staff discussions into individual claims and then apply the standard validation, verification, and merger specificness screens.⁶⁵ While efficiency claims are not made in every case; an average of three claims are advanced when efficiencies seem to merit discussion. Both the Bureaus of Competition and Economics report variable cost, fixed cost, and dynamic efficiencies, along with a few generic claims. Staff reviews generally discuss the efficiency claim in light of the Guideline review standards, but most claims are neither clearly rejected nor accepted. In addition to the expected comments on validity, verification, and merger specificness, the staff analysis may discuss issues associated with the efficiency being outside the market of concern, limited to fixed costs, or not passed through to the consumer. Reviews by both the Bureaus of Competition and Economics provide the Commission with perspective, as the specific staff evaluations regularly differ. Interestingly, the reviews appear basically as favorable for variable cost savings as fixed cost savings.

Some form of an efficiency argument exists when at least one claim is favorably reviewed or, in some cases, accepted by the staff. Using this definition of efficiency, the data show the economists have always had a strong interest in efficiencies, while the Bureau of Competition developed more of an interest around 1995.⁶⁶ These staff-based codings have been used to create a combined attorney/economist variable equal to one when at least one Bureau finds efficiencies and zero otherwise.⁶⁷ While historical studies have shown a positive value for the efficiency index reduces enforcement,⁶⁸ the variable has had mixed success in the Transparency project. Initial results suggested that the variable had no effect when a broad set of control variables is used, but more recent results show the expected negative effect on the probability of an enforcement action.⁶⁹

The review of the files also highlights the fact that the staff rarely assesses whether efficiency considerations reverse the competitive concerns. This result is probably driven by a combination of the relatively qualitative competitive effects analysis and the difficulties

⁶³ Williamson (1967) is the classic reference, while Roberts & Salop (1996) offers an interesting synthesis of social welfare and price analysis.

⁶⁴ For a discussion of balancing and a comment on the role of customer support, *see* Coate (2005a). And for evidence suggesting the Commission's Bureau of Competition started addressing efficiencies in more cases in 1995, *see* Coate (2009a).

⁶⁵ Coate and Heimert (2009). The discussion in the rest of the paragraph draws on this research.

⁶⁶ Coate (2009a) at Table 6.

⁶⁷ Coate (2005b). On occasion the study is limited to the BC data.

⁶⁸ *See*, for example, Coate (2002).

⁶⁹ Compare Coate (2005b) with no significant efficiency findings, with Coate & Ulrick (2009) and Coate (2009a) with significant efficiency results. Limiting the data to collusion cases generates mixed results (Coate (2008b)), while a focus on pure unilateral concerns does not detect a standard efficiency effect when controlling for a range of factors (Coate (2009c)). In effect, an extensive specification of the enforcement model may capture efficiency issues in more than one explanatory variable.

associated with measuring the magnitude of the efficiencies.⁷⁰ While parties often allege specific efficiency claims, the standard analysis implies some reductions must be taken to compute the validated, verified, merger-specific efficiency. Many staff investigations are only able to conclude that some positive level of efficiencies should be expected. Without a detailed estimate of the magnitude of the price effect and a valuation for efficiencies, explicit balancing is not possible.⁷¹

Innovations in Efficiency Analysis

One important innovation is the willingness to broadly consider efficiency claims. For example, fixed cost savings are considered, possibly because they clearly generate pressure for lower prices in the long run. Likewise, dynamic efficiencies associated with the reduction of transaction costs are also relevant, because these savings enable the introduction of innovative products or technologies. And efficiencies outside the market of concern are relevant, unless some remedy resolves the competitive problem without eliminating the efficiencies. On the other hand, studies often disregard merger-specific efficiency claims when the merged firm is able to retain the savings after divesting the “offending” assets in an innovative merger settlement. Counting efficiencies the merged firm retains after the remedy as a reason not to impose a settlement would be a policy error. Balancing remains in the experimental stage; while mathematical models offer the potential to quantify the effects of the transaction, evidence is needed to validate the applicability of the proposed model.

VI. CONCLUSION

The review of staff memos generates a number of important insights into applied merger analysis and highlights a number of innovations, many of which deserve further work. First, although roughly half of the markets are relatively easy to define given the physical and economic realities of the marketplace, the other half of the market definitions require complex analysis. Critical loss structures offer promise and a key question is whether some type of homogeneous or composite good can be defined to facilitate the market-level calculation. Market definition is an empirical, not theoretical, question as markets are only analytical constructs designed to aid the overall analysis. When limitations on available data preclude critical loss analysis, natural experiments or pattern analysis might be useful. Further work is certainly needed to develop new ideas to structure market definition analysis in complex cases.

Given a market, it may be possible to build on the innovations associated with significant competitors, leadership, and numbers equivalent concepts to create sophisticated structural indexes. Moreover, thought should be given to revising the structural presumptions to reflect enforcement realities.

⁷⁰ Coate & Heimert (2009).

⁷¹ Any merger simulation model can evaluate the effect of the efficiencies by lowering the cost structure for the merged firms and solving for the post-merger equilibrium. Because dynamics are often important, the analysis should also model how the efficiencies are diffused through the market and balance the short run and long run effects of the merger.

Guideline-based competitive effects analyses should be seen as hypotheses for the competitive effect of a merger. Both unilateral effects and coordinated interaction theories are relevant, although virtually always for different mergers. The hypotheses need to be tested with evidence prior to concluding the merger is likely to substantially lessen competition.⁷² The test may be based on a natural experiment isolated during the investigation, validated customer concerns, or hot documents. These last two considerations may very well be linked to historical natural experiments observed by the relevant parties and thus may be just as market-based as pure economic data. Of course, care must be taken to ensure that the evidence, aligned with the theoretical competitive concern, is actually compatible with the competitive environment faced by the firm. This is particularly important for a plaintiff in light of the willingness of courts to ignore questionable customer concern and hot document evidence.⁷³ General studies linking customer concerns and hot documents to specific natural experiments may enhance the value of this evidence. Evidence may also be useful to falsify the theory of concern, as different natural experiments, customer support or cold documents may imply competition is not likely to be affected by a change in structure. Further work could test these economic models, possibly by focusing on industries with repeated interactions at the enforcement agencies or markets in which the remedy failed to affect structure (due to some unforeseen shock to the market) and the alleged anticompetitive effect had a chance to occur.

Entry analysis on timeliness and sufficiency are generally based on relatively hard facts available in the record of the investigation. Time-lines are readily identifiable, and a reasonably clear answer is possible for the ability of an entrant to compete in the business segment affected by the merger. Likelihood of entry remains, on occasion, subject to speculation. However, the likelihood issue is most amenable to economic analysis. We know that firms model entry decisions in the normal course of business. The merger analyst should be able to do the same thing, and answer the question of whether entry is profitable at the required scale to negate the theory of competitive concern. Modeling has been undertaken in a few FTC investigations and it should be undertaken in many more cases to improve the standard ad-hoc likelihood analysis. Further analysis could also exploit the evidence on actual or expected entry. Actual entry represents a natural experiment that may be useful for competitive effects analysis, while expected entry almost always generates some implications for the Guidelines' analysis. While these links are recognized, their significance could be further developed.

Finally, efficiency claims appear to matter (at least a little). Efficiency analysis is badly in need of a method to integrate cost savings into the overall competitive effects analysis. Modern Industrial Organization offers a range of models to simulate the outcome of mergers given both changes in structure and cost considerations. Once the competitive effects analysis validates the predictions of the model for the competitive concern, it could make sense to run the simulations with various assumptions for the cost savings to determine the net effect of the merger. Of course, economics has a wide range of other models that can also offer insights when a

⁷² For coordinated interaction and unilateral effects models, this testing is necessary for the analysis to be validated science. Simply presenting mathematical analysis or qualitative arguments is not sufficient to predict the effect of a merger, because the theory has no empirical support until it is tested. Parameterizing a model is not enough. Coate & Fischer (2009). *See also*, Fisher (1989) and Peltzman (1991).

⁷³ *See*, for example, *FTC vs. Arch Coal, Inc, et al.* 329 F. Supp. 2nd 109 (D. D. C., 2004).

complete quantification of the competitive process is not viable. Close study of efficient transactions allowed to proceed would seem like a good idea to identify the approaches best able to find real world efficiencies. And empirical studies relating changes in fixed cost to changes in the market price would be useful to identify any direct and immediate effect of fixed cost efficiencies.⁷⁴

The review of the record suggests a large and growing role for economics in antitrust investigations. However, the staff analyses are clear; merger enforcement regularly highlights evidence on likely competitive concerns. Standing alone, simulation models or other theoretical economic analyses are poor substitutes for real evidence suggestive of less than competitive behavior. Of course, for maximum impact, effects evidence should be presented in light of an economic theory of violation. Thus, merger reviews need to combine the economic ideas inherent in the Guidelines with the facts needed to substantiate the economic analysis.

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The FTC and DOJ's Horizontal Guidelines Review Project: What Changes Might Be In Store for Merger Review?

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The FTC and DOJ's Horizontal Guidelines Review Project: What Changes Might Be In Store for Merger Review?

Mary Coleman¹

I. INTRODUCTION

In September 2009, the Federal Trade Commission ("FTC") and Department of Justice's Antitrust Division ("DOJ") announced a project to review the Horizontal Merger Guidelines² and assess whether a revision to the Guidelines is warranted.³ This project is part of a continuing attempt by the agencies over the last several years to be more transparent as to the procedures and analyses utilized to review mergers, as seen in the increasing use of closing statements in many mergers as well as the issuance of the *Commentaries on the Merger Guidelines* in 2006.⁴

In her speech introducing the review project, Assistant Attorney General Varney indicated that revisions to the Guidelines will be considered if the Guidelines do not fully reflect current practices by the agencies or reflect advances in research or best practices that have occurred in the 17 years since the last major revision of the Guidelines. Indicating the importance the agencies are placing on this process, key senior staff lawyers and economists are spearheading the project, including Molly Boast, Phil Weiser, and Carl Shapiro from DOJ and Rich Feinstein, Joe Farrell, and Howard Shelanski from the FTC.

II. PROCESS

As part of the project, the FTC and DOJ are actively soliciting input from outside the agencies. On September 22, the agencies released 20 questions regarding the Guidelines on which they were soliciting input. These questions are related to (among other topics): (1) whether clarification that the agencies do not use a rigid step-by-step approach would be useful; (2) the use of "direct evidence;" (3) market definition (both product and geographic); (4) use of shares and concentration in the review process; (5) unilateral effects analyses; (6) price discrimination; (7) the role of large buyers in merger review; (8) uncommitted versus committed entry; (9) analysis in dynamic markets and the impact of mergers on innovation; and (10) the types of efficiencies that are cognizable.

Written comments on these questions were due November 9, 2009 and the FTC received 44 written comments, the majority of which were from economists.⁵

In addition, the agencies are conducting a series of workshops discussing these questions, with two sessions in Washington, DC (in November and January), and one each in

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² See <http://www.ftc.gov/bc/docs/horizmer.shtm>.

³ See <http://www.ftc.gov/speeches/leibowitz/090922mergerguideleibowitzremarks.pdf> and <http://www.justice.gov/atr/public/speeches/250238.htm>.

⁴ See <http://ftc.gov/os/2006/03/CommentaryontheHorizontalMergerGuidelinesMarch2006.pdf>.

⁵ See <http://www.ftc.gov/os/comments/horizontalmergerguides/index.shtm>. The author submitted comments and was part of the task force that drafted the ABA Antitrust Section comments.

New York, Chicago, and Palo Alto (in December and January). The first workshop was webcast and transcripts of the other workshops are expected to be available.⁶

The agencies are also conferring with other jurisdictions as well as conducting an internal review. This review will include discussions with staff on how they perceive the Guidelines relative to the practices employed by the agencies.⁷

III. LIKELY KEY ISSUES

I discuss below what I believe will be some of the key issues in the Guidelines review process. Other issues such as large buyers, innovation, and efficiencies may also be important. However, I believe those issues will be less likely to drive whether the Guidelines will be revised but rather may be addressed if a revision is undertaken.

A. Market Definition

An important issue is likely to be whether the Guidelines discussion of market definition should be updated. In several recent challenges where a unilateral effects theory was posited, the agencies have had difficulties, particularly at the district court level, with market definition based on what appear to be, at least at first consideration, relatively narrow relevant markets. In addition, there has been much discussion and controversy over the theoretical underpinnings and application of critical loss analysis with regard to market definition. Price discrimination markets or theories are also frequently raised in merger investigations and were important components of the recent appeals court decision in the *Whole Foods* matter, yet the Guidelines provide only limited guidance as to how such analyses are conducted.

Thus it is possible that a clarification of the approach to market definition in general, and particularly with regard to cases involving potential unilateral effects cases, would be worthwhile. The agencies have stated that market definition will continue to be a part of merger review (contrary to the view of some that market definition may not be particularly relevant in at least some unilateral effects cases). Possible areas of further clarification might include: (1) what is the role of critical loss analysis and, in particular, how does one measure actual loss and what should one assume, if anything, about the relationship between critical loss and actual loss; (2) what is the role of market definition in unilateral effects cases and can one show localized effects even if the market is defined more broadly; and (3) under what circumstances are price discrimination markets appropriate?

Another key market definition issue relates to geographic markets. The current approach in the Guidelines is focused on the locations of the suppliers rather than the locations of customers. While this may be appropriate in some cases; in others, it is more or equally important to assess where the customers are located and what options they have. This is a likely area for clarification if the Guidelines are revised.

⁶ See http://htc-01.media.globix.net/COMP008760MOD1/ftc_web/FTCindex.html#Dec03_09 for a link to the webcast of the initial session.

⁷ See <http://www.justice.gov/atr/public/speeches/251858.htm>.

B. Market Share and Concentration Screens and Presumptions

The current Guidelines utilize HHI concentration screens as a starting point to the analysis. The Guidelines state that mergers that result in a post-merger HHI less than 1,000; less than 1,800 with a change less than 100; or greater than 1,800 with a change less than 50 typically require no further analysis. The Guidelines further state that mergers that result in post-merger HHIs less than 1,800 but with a change greater than 100 or greater than 1,800 with a change greater than 50 raise “significant” competitive concerns. In the latter case, if the change is greater than 100, there is a rebuttable presumption that the merger would create or enhance market power or facilitate its exercise. In addition, the unilateral effects section of the Guidelines indicates that where a differentiated products merger falls outside of the safe harbor of the HHI screens and the combined share is greater than 35 percent, the agencies will presume that the two companies’ products are next-best substitutes for a significant number of customers, making unilateral effects more likely.⁸

However, it is well known that agency practice is not consistent with these screens. As shown in data released by the agencies, other than in the petroleum industry, mergers are generally never challenged with post-merger HHIs less than 1,800 or with a change less than 250.⁹ Moreover, it is unclear whether HHI measures are particularly helpful in assessing the potential for unilateral effects and the practical relevance of the 35 percent screen (other than it provides some guidance to business in assessing the likelihood that unilateral effects will be argued).

It thus may be an important, albeit challenging, aspect of the review process that if the Guidelines are to be revised, the screens—or at least the wording—should be updated to be more reflective of actual agency practice. This would provide more transparency to practitioners (particularly those who only infrequently do merger analysis), business and importantly other agencies—both within the United States and abroad. It is not unusual, given the language, for those not familiar with the practice of the FTC and DOJ to assume that the 1,800 limits, for example, are stricter than is actually the case in practice.

C. Clarification on Unilateral Effects

Another key issue is likely to be the unilateral effects discussion. Prior to the 1992 Guidelines unilateral effects were not a significant part of merger analysis, but they have since become a very common (if not the more common) concern raised in merger review. There has clearly been much more learning and improvement in how unilateral effects analyses have been conducted in the last 17 years. Thus, some greater amplification in the Guidelines on unilateral effects may be worthwhile. As noted above, one important issue is the role of market definition in a unilateral effects case and how to assess the potential for localized effects within broader markets.

There may also be an opportunity to clarify the different types of unilateral effects theories and the types of evidence most relevant to them (particularly bidding models which are barely mentioned in the Guidelines). We often think about differentiated consumer products

⁸ See Guidelines at § 1.51 and 2.211.

⁹ See <http://www.ftc.gov/os/2007/01/P035603horizmergerinvestigationdata1996-2005.pdf> and <http://www.ftc.gov/os/2003/12/mdp.pdf>.

with an underlying Bertrand model in the context of unilateral effects but there are other theories that are also common – instances with idiosyncratic customer-by-customer competition or homogenous products where the combined firm would have a large share of production and/or capacity. In many cases, the agencies employ auction or “bid” models in the former case, yet such models are barely mentioned in the current Guidelines. More guidance with regard to these issues, including distinctions regarding the types of information that are most relevant, may be useful.

In addition, unilateral effects analyses in many cases involve the estimation of diversion ratios (particularly in consumer products matters but in other cases as well). In these cases, the agencies (and outside parties) attempt to estimate, under current market conditions, what fraction of sales that one of the parties would lose due to a price increase in its product would shift to the product of the other party. In fact, the two current chief economists at the agencies have advocated the use of an “upward pricing pressure” test as a screening tool in unilateral effects cases that employs estimates of diversion ratios and margins. In addition, in some cases the agencies and outside parties will use simulation models that employ the diversion ratios (among other things) to estimate the change in price due to the merger (although the impact of such models on enforcement decisions is unclear). It will be interesting to see if a revision to the Guidelines will clarify the role of diversion ratios (the types of evidence used to calculate them and how they factor into the assessment of unilateral effects) as well as the use of simulation models. Given the technical nature of the latter, it is unclear whether such models would be mentioned in the Guidelines other than perhaps at a very high level.

D. Use of Direct Evidence

The review project also asks whether the Guidelines should clarify the use of direct evidence. Exactly what the agencies mean by direct evidence versus other types of evidence is not completely clear; however, it appears to distinguish between evidence that is used within some sort of a structural model that would then be used to predict the impact of the merger versus evidence that might be more directly capture the potential effects of the merger. From an economic viewpoint, I consider this comparing a “structural” approach to a “reduced form” approach.

Examples of “direct” evidence that are discussed in the questions posed by the agencies include: (1) pricing evidence in consummated deals; (2) the use of natural experiments; (3) evidence of past coordination in coordinated effects cases; and (4) qualitative evidence (customer concerns and “hot documents”).

Clearly, the agencies use this sort of direct evidence as part of their standard merger review where it is available. A key question is how much detail should be included in the Guidelines. If discussed, providing some detail as to the types of analyses conducted would be useful, but it would also be important to describe the potential caveats to such analyses. For example, observing simply that prices went up following a consummated merger would not be enough to infer competitive harm but rather it would be important to analyze whether there are other factors that might explain the price increase.

IV. POTENTIAL OUTCOME OF THE PROCESS

The Guidelines review process is clearly still in its early stages and the ultimate outcome is still highly uncertain. The process itself will, of course, provide some additional information to both the agencies and practitioners. Ultimately the process may result in revised Guidelines. However, coming up with a revised set of Guidelines will not be an easy process. First, both agencies will have to agree on what changes should be made not only in terms of the broad areas for change but also in the specific language. Moreover, it will be challenging to determine the appropriate language to make the Guidelines: (1) understandable for all practitioners; and (2) flexible enough to address the range of industries and issues that arise. An alternative and/or supplement to revisions in the Guideline would be to provide more information in speeches or possibly an updated Commentary. It will be interesting to see what develops in the next year.



Horizontal Merger Guidelines Revision: A Draftsman's Perspective

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Horizontal Merger Guidelines Revision: A Draftsman's Perspective

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I. INTRODUCTION

When the *Horizontal Merger Guidelines*² were revised in 1992, probably no one involved in the drafting process expected that it would be over 17 years before the Department of Justice ("DOJ") and the Federal Trade Commission ("FTC") would call for a major revision. The path-breaking 1982 *Merger Guidelines* were revised a mere two years after their release. The 1984 *Merger Guidelines* that followed lasted only six years before their likely revision was announced. While the 1968 *Merger Guidelines* survived 14 years before replacement, they had long before ceased to have any relevance to merger policy. History did not foreshadow a long and prosperous existence for the 1992 Guidelines, certainly not into near adulthood.

But the 1992 Guidelines achieved not only longevity but also considerable influence. Federal Trade Commission Chairman Jon Leibowitz's remarks announcing the Horizontal Merger Guidelines review project referred to the 1992 Guidelines as "one of the most cited documents in modern antitrust." Courts and commentators routinely cite with favor the 1992 Guidelines' framework in merger and non-merger cases alike. Perhaps more significantly, the 1992 Guidelines' framework had enormous global influence, as evident in similar approaches adopted around the world.

The key to this success, I would argue, is that 1992 Guidelines, for the most part, ask the right questions, provide a structured framework in which to ask those questions, maintain a sense of balance rather than trying to tip the table, and avoid the cookbook or check list approach that would have ensured early obsolescence in a continually changing economy. Careful readers of the 1992 Guidelines certainly can point to places where the 1992 Guidelines depart from these principles (the "for the most part" qualification in the prior sentence is there for a reason). Nevertheless, the drafters of the next edition Guidelines would be well advised to adopt these principles to guide the revision process and ensure that the successor version is as long lasting and as influential as its predecessor.

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² 1992 HORIZONTAL MERGER GUIDELINES WITH APRIL 8, 1997 REVISIONS TO SECTION 4 ON EFFICIENCIES, U.S. Department of Justice & Federal Trade Commission, (April 8, 1997), available at the FTC website page devoted to the Merger Guidelines Review Project, <http://www.ftc.gov/bc/workshops/hmg>, [hereinafter "1992 GUIDELINES"].

II. IT IS TIME

As the principal draftsman of the 1992 Guidelines, I developed what might fairly be described as an unusual attachment to the document and its framework. But even from that perspective, I must admit it is time to revise the 1992 Guidelines. In order to provide meaningful guidance, guidelines must reflect actual agency practice. But Agency practice has diverged from the 1992 Guidelines, in some respects for the better and in some respects for the worse. Perhaps the best evidence of this divergence is the *Commentary on the Horizontal Merger Guidelines* (“the Commentary”) released by the Federal Trade Commission and the Department of Justice in 2006.³ The Commentary shows how the agencies, among other things, have de-emphasized market definition and market concentration, devoted greater attention to competitive effects, largely ignored issues of dynamic response, and attempted to break free from the step-wise framework permeating the 1992 Guidelines.⁴ This divergence between the 1992 Guidelines and actual agency practice itself is sufficient to warrant revision of the 1992 Guidelines, agency practice—or perhaps both.

III. ASK THE RIGHT QUESTIONS

The next version of merger guidelines should focus the analyst on asking the right questions. But an opaque standard like “the right questions” is much easier to state than it is to apply. What are the right questions as distinguished from the wrong questions?

The 1992 Guidelines hold themselves out as providing the “analytical framework” for antitrust analysis of mergers.⁵ The choice of the term “analytical framework” was a considered departure from the language of the 1984 Guidelines which offered the “general principles” that ordinarily would be applied in merger analysis.⁶ In reorganizing and revising the 1984 Guidelines, the 1992 Guidelines sought to identify the conditions necessary to establish that a merger was likely to create or enhance market power, or facilitate its exercise. The right questions are the questions that elicit the facts that determine whether those necessary conditions are met. The analytical framework serves as “a methodology for analyzing issues once the necessary facts are available.”⁷

The drafters of the next merger guidelines should adopt the same approach of identifying the conditions necessary to establish that a merger is likely to create or enhance market power, or facilitate its exercise. Of course, in doing so the guidelines will then establish the sufficient conditions for the parties to establish that the transaction should be cleared. As

³ COMMENTARY ON THE HORIZONTAL MERGER GUIDELINES, U.S. Department of Justice & Federal Trade Commission, (March 2006), available at <http://www.ftc.gov/bc/workshops/hmg>, [hereinafter “Commentary”].

⁴ See Paul Denis, *The Give and Take of the Commentary on the Horizontal Merger Guidelines*, ANTITRUST 51 (Summer 2006).

⁵ *Supra* note 2, GUIDELINES § 0.

⁶ 1984 MERGER GUIDELINES §1, available at <http://www.justice.gov/atr/hmerger/11249.htm>, [hereinafter “1984 GUIDELINES”].

⁷ *Supra* note 2, GUIDELINES § 0.1.

was the case in 1992, some will contend that this level of transparency will doom future merger enforcement by making it too easy for the parties to knock out the government's case. But merger enforcement thrived rather than suffered under the 1992 Guidelines framework. The transparency of the analytical framework and its emphasis on asking the right questions gave the 1992 Guidelines a credibility that played a major factor in their longevity. The drafters should maintain this focus.

IV. PROVIDE A STRUCTURED FRAMEWORK

In asking the right questions, the agencies should maintain the structured framework of the 1992 Guidelines, with the analysis moving in a step-wise or linear fashion through the five sections of the 1992 Guidelines framework: (1) market definition, measurement, and concentration; (2) competitive effects; (3) entry; (4) efficiencies; and (5) failing firm/division. As then-AAG James F. Rill said when announcing the issuance of the 1992 Guidelines: "The Guidelines' framework consists of five steps. Each is necessary and together they are sufficient to determine whether a merger is likely to create or enhance market power."⁸

After fourteen years of agency experience in applying the 1992 Guidelines framework, the Commentary took the position that

Each of the Guidelines' sections identifies a distinct analytical element that the Agencies apply in an integrated approach to merger review. The ordering of these elements in the Guidelines, however, is not itself analytically significant, because the Agencies do not apply the Guidelines as a linear, step-by-step progression that invariably starts with market definition and ends with efficiencies or failing assets.⁹

The first question in the Questions for Public Comment published by the FTC and DOJ at the time the review process was initiated asked

Should the Guidelines be revised to indicate that the Agency's assessment of whether the merger is likely to reduce competition may not entail following the five steps in the order listed and that not all five steps are needed in all cases?

The answer to the first part of the question most certainly should be "no." This is one area where agency practice should be changed to conform to the Guidelines rather than the other way around. Either of two reasons should be sufficient to resolve this issue:

1. First, each successive step of the Guidelines five step process explicitly relies on the resolution (or at least an assumption as to the worst-case resolution) of the prior step. Any contention that these steps are completely distinct elements is simply incorrect on its face.¹⁰ To make them completely distinct would require a whole scale re-writing of the Guidelines, something the agencies have disclaimed any intention to undertake.

⁸ Interview with AAG James F. Rill, 61 Antitrust L.J. 229, 232 (1992). See also Paul T. Denis, *An Insider's Look at the New Horizontal Merger Guidelines*, ANTITRUST 6 (Summer 1992).

⁹ *Supra* note 3, COMMENTARY at 2.

¹⁰ For an explanation of the linkages between the steps, see *Roundtable Discussion, Merger Guidelines Revisited*, ANTITRUST 8, 13-14 (Fall 2009).

2. Second, the structured framework has had enormous value in teaching merger analysis and in shaping what experienced analysts now assert is their “intuition” while not impeding an integrated or holistic analysis. Calls for abandonment of the step-wise or linear approach of the 1992 Guidelines are perhaps the greatest compliment to the wisdom of this approach. The framework has been so thoroughly assimilated and has become so imbedded in the brains of the leading legal and economic practitioners, both inside the agencies and outside, that they don’t even realize that they are applying it.

Experienced practitioners today can and do essentially skip steps in analyzing mergers, making enforcement decisions, and advising clients. But they (at least the good ones) do so with an awareness of what it is that they are skipping and by making worst case assumptions about how those skipped steps might be resolved if fully analyzed. Those who were around at the time the 1992 Guidelines were released will recall that it took a while before the guidelines framework came to be regarded as a shared intuition. The drafters of the next merger guidelines should keep in mind that the framework is learned, not intuitive. Their target audience for the revisions should be not just the antitrust merger analysis cognoscenti, but also the next generation cognoscenti whose DNA does not yet embody the framework, and the occasional user who will need regular reminders. Even the best of practitioners won’t be hurt by a reminder of first principles.

Finally, while not dispositive of the issue, it is telling that the Commentary, after a more free form introduction, adopts as its organizing principle the step-wise linear approach of 1992 Guidelines. It remains the best way to structure and organize both merger analysis and discussions of merger analysis. The structured framework should be retained and followed.

V. MAINTAIN A SENSE OF BALANCE

To ensure the continued acceptance and credibility that benefitted the 1992 Guidelines, the next merger guidelines must maintain the sense of balance struck in the 1992 Guidelines. The 1992 Guidelines had no agenda to increase or retard merger enforcement. The focus was on asking the right questions and letting the facts of the particular transaction determine the outcome.

In the Commentary, there was a noticeable effort to take back some ground lost in litigation of put down markers on points the agencies hoped to establish in the future, something that should be avoided in the guidelines drafting.¹¹ The agencies should attempt to shape the law. But the process of shaping the law is best left to the Commentary, speeches, and, of course, litigated cases. The next guidelines should reflect the result of that process of shaping the law rather be conscripted into being part of that process.

¹¹ See generally Denis, *supra* note 4.

VI. AVOID COOKBOOK OR CHECKLIST APPROACHES

Several of the Questions for Public Discussion revolve around whether the next merger guidelines should include discussion of evidence to be considered, tools to be applied, or examples of past deals. They should not.

The inclusion of certain evidence, tools, or examples necessarily implies the exclusion of other evidence, tools, or examples. To remain usable, the next merger guidelines must continue to be limited in length and cannot be exhaustive in the treatment of evidence, tools, and examples. It is better to exclude discussion of evidence, tools, and examples than to include some of each. Those included will be perceived by some readers as being more important than those excluded; those excluded will be perceived as being less important. There is real risk that the items included become a rote checklist that parties feel compelled to address in every deal, not unlike Section 3.4 of the 1984 Guidelines, the amorphous “other factors” section.

Things like natural experiments, critical loss analysis and upward pricing pressure, residual demand estimation, and merger simulation are tools. None of these tools have universal applicability. Each has proven to have some value in different circumstances. The agencies should consider a revised and expanded Commentary to offer greater insights into the possible uses and misuses of these tools.

The 1992 Guidelines are not perfect in avoiding discussion of evidence.¹² The next merger guidelines would do well to avoid repeating this mistake and focus instead on asking the right questions.

VII. EXPAND THE TREATMENT OF UNILATERAL EFFECTS

It is ironic that the inclusion of the unilateral effects section in the 1992 Guidelines was both the most influential and perhaps the least understood change relative to the 1984 Guidelines (the distinction between uncommitted and committed entry may be a close second). Government merger complaints now place reliance on unilateral effect theories at a rate far greater than ever before while volumes are being written trying to understand the underlying principles. The guidelines revision process should address this confusion by expanding the unilateral effects section to break down more clearly the necessary conditions for finding likely unilateral effects from a merger under different modes of competitive interaction.

The unilateral effects section in the 1992 Guidelines stresses that “unilateral competitive effects can arise in a variety of different settings. In each setting particular other factors describing the relevant market affect the likelihood of unilateral competitive effects. The settings differ by the primary characteristics that distinguish firms and shape the nature of their competitive interaction.”¹³ But there is no effort to detail each of the settings or modes of competitive interaction that might apply. Instead, the 1992 Guidelines focus primarily on the

¹² See, e.g., *supra* note 2, GUIDELINES §§ 1.11 and 1.21 (evidence relevant to market definition), 2.1 (relevance of prior collusive history), and 2.211 n.22 (sources of information relevant to unilateral effects analysis).

¹³ *Id.* § 2.2.

setting in which firms compete based on the characteristics of the products they sell, treating that particular setting like a template that could be extended to other settings.¹⁴

Less extensive treatment is given to the setting in which firms are differentiated by their capacities.¹⁵ Footnote 21 of the 1992 Guidelines is the only treatment of other settings, briefly mentioning firms competing through individualized negotiations, bidding, or auctions. The drafters of the next merger guidelines would be well advised to build on this footnote, bring it into the text, and explicate more clearly the necessary conditions to establishing the likelihood of adverse unilateral effects under different settings/modes of competitive interaction. The settings/modes noted in the 1992 Guidelines may be insufficient and it may be necessary also to consider other settings or modes of competitive interaction. Some industries are best characterized by a dominant firm model or by spatial/locational competition and those settings/modes of competition may warrant separate explication. But with each, the focus should be on identifying the necessary conditions to establishing the likelihood of the competitive effect of concern.

VIII. ELIMINATE PRESUMPTIONS

One concept that should not be found in the next merger guidelines is the structural presumption. In investigative practice today (as distinguished from litigation), the agencies do not infer presumptions from structural evidence, nor should they. Rather, structural evidence is used as a screening device or safe harbor. Transactions with minimal impact on concentration or resulting in post-merger concentration below some critical level (most likely a level above the HHI 1800 threshold stated in the 1992 Guidelines) are allowed to proceed without detailed review. On this point, the next merger guidelines should conform to agency practice, not the other way around.

The structural presumption made its way into the 1992 Guidelines as an alternative to language in the 1984 Guidelines suggesting that the agencies were “likely to challenge” transactions based solely on structural evidence.¹⁶ The “likely to challenge” language was incorrect both as a matter of theory and as a statement of agency practice and had to be removed if the Guidelines were to have any chance at attaining credibility. In investigative practice, concentration had become, as it is today, at most a screening tool. But given the weight the agencies continued to place in litigation on structural presumption as articulated in *Philadelphia National Bank*, there would be no way to achieve a consensus for drafting the Guidelines to describe what was actually happening at the agencies.

The compromise was to adopt as an alternative to the “likely to challenge” language the structural presumption, incorporating the learning of Baker Hughes where then Judge (now Justice) Thomas explained that presumptions merely were of evidentiary not substantive

¹⁴ *Id.* § 2.21. Those interested in the theoretical underpinnings should see Robert D. Willig, *Merger Analysis, Industrial Organization Theory, and Merger Guidelines*, BROOKINGS PAPERS ON ECONOMIC ACTIVITY, MICROECONOMICS, VOL. 1991, pp. 281-332, (1991) available at <http://www.jstor.org/pss/2534795>.

¹⁵ *Supra* note 2, GUIDELINES § 2.22

¹⁶ *Supra* note 6, 1984 GUIDELINES § 3.11.

significance. Once the government established the structural presumption, the burden of coming forward with evidence to rebut the presumption shifted to the merging parties, but the overall burden of persuasion remained at all times with the government. Obviously, the incorporation of the structural presumption was at odds with the notion that the Guidelines should be burden neutral,¹⁷ but necessity of compromise won out over internal consistency.

Since the 1992 Guidelines were adopted, there has been a continued erosion of the *Philadelphia National Bank* structural presumption, a fact conceded even by senior agency officials.¹⁸ Whereas it was once thought that if the structural presumption was established that adverse competitive effects from the transaction were likely, it is now widely understood that a host of other market characteristics are relevant and there is no necessary relationship between market concentration and competitive effects. The next guidelines should make this recognition official and remove the structural presumption. Alternatively, if misplaced concerns about litigation advantage continue to dominate, the next guidelines should make clear that the agencies view the presumption as merely of evidentiary, and not substantive, significance; perhaps shifting the burden of coming forward with evidence but not creating an independent basis for concluding that a transaction is likely to have adverse competitive effects.

At a minimum, the drafters should remove the second presumption embedded into the Guidelines in the unilateral effects section.¹⁹ Unlike the basic structural presumption incorporated into Section 1.5 of the 1992 Guidelines, this second presumption has no foundation in the case law or theory. It started out as an effort to create a safe harbor that would ensure that unilateral effects analysis would not be misused to go after transactions with, at best, very small welfare effects. The thirty-five percent figure was chosen because it was part of the “leading firm proviso,” the closest thing to unilateral effects found in the 1984 Guidelines.²⁰ Fears that the safe harbor approach might infect Section 1.5 of the Guidelines and lead to the demise of the structural presumption led to the conversion of the safe harbor into a presumption, albeit one that is phrased in such a way as to defy its application (market share in differentiated products markets rarely, if ever, reflects a product’s relative appeal as a second choice which thereby negates a condition necessary for application of the presumption).²¹

IX. CONCLUSION

The 1992 Guidelines have had a really good run, longer and more influential than anyone could have expected when they were released. But the time has come to update the 1992 Guidelines to more closely reflect actual agency practice and more clearly explicate important issues, such as unilateral effects analysis. If the drafters of the next guidelines can maintain the

¹⁷ *Supra* note 2, GUIDELINES § 0.1,

¹⁸ *See, e.g.*, Carl Shapiro, Updating the Merger Guidelines: Issues for the Upcoming Workshops, Address before the Fall Forum, Antitrust Section, American Bar Association (Nov. 12, 2009).

¹⁹ *Supra* note 2, GUIDELINES § 2.211.

²⁰ *Supra* note 6, 1984 GUIDELINES § 3.12.

²¹ *Supra* note 2, GUIDELINES § 2.211.



focus on asking the right questions and maintain the structured framework in which to ask those questions, we could have an equally influential document and might go more than another 17 years before revisiting these issues.



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Revising the Merger Guidelines: Looking Back to Move Forward

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Revising the Merger Guidelines: Looking Back to Move Forward

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I. INTRODUCTION

The Federal Trade Commission (“FTC”) and Department of Justice (“DOJ”) have announced plans to consider revising the Horizontal Merger Guidelines “in light of changes in economic learning, the case law, and practice at the Antitrust Division and the FTC.”² There can be little doubt that aligning the Guidelines to actual practice and providing greater transparency to parties on the analysis the agencies will use is beneficial. There is, of course, a threshold question as to whether what the agencies have done—and may do differently in the future—is appropriate. Merger analysis is by necessity forward-looking and it can be difficult to make predictions about the future. In that vein the last question the agencies ask in their list of questions for public comment is “Should the Guidelines be revised to reflect learning based on merger retrospective studies?”³ In some respects that should be the first question—and the answer should be yes. The agencies should, in some form, examine their analytical approach to determine whether they made accurate predictions and, if not, why not.

Merger retrospectives are challenging and they can be time-consuming and inconclusive; further, the necessary data can be difficult to obtain. Yet over the years they have been done. The FTC can examine those retrospective analyses to try to determine why predictions may have been incorrect: Did they have insufficient facts, were the facts ambiguous, did they believe there were likely to be anticompetitive effects but believe they did not have the evidence to go to court, was the economic model imprecise? There can be any number of reasons why the predictions were incorrect, and comparing the initial analysis to the ultimate outcome can be instructive.

Notwithstanding the difficulty of conducting merger analyses, there are several areas of the guidelines that are fruitful areas for examination. It would be in the agencies’ interest to consider what they have predicted well and what they have not before embarking to codify what they have been doing.

II. PRODUCT MARKET

The ultimate question in market definition is whether customers will switch to other alternatives in response to price increases—and will those switches be enough to make the price increase unprofitable. The agencies often must answer that question in situations where the market is evolving—sometimes rapidly. One interesting case study would be the Hollywood-Blockbuster transaction. The FTC investigated whether the combination of the companies, both

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² Welcome Remarks of Christine A. Varney, Horizontal Merger Guidelines Review Project’s First Workshop, December 3, 2009, available at <http://www.justice.gov/atr/public/speeches/252614.htm>.

³ Horizontal Merger Guidelines: Questions for Public Comment Federal Trade Commission and U.S. Department of Justice, September 22, 2009, available at <http://www.ftc.gov/bc/workshops/hmg/hmg-questions.pdf> (“Horizontal Merger Guidelines Questions”).

of which rented videos and games in bricks and mortar stores, would lead to higher prices. The FTC staff had enough questions to issue a Second Request and later go to court to force the parties to provide additional data. The parties abandoned the transaction before the Commission decided whether to seek to block it, but the Commission was clearly looking hard at the transaction. The parties were undoubtedly arguing that changes in the industry—particularly the emergence of Netflix as a rival in on-line, mail-order rentals—were dramatically altering the competitive landscape for bricks and mortar stores. They likely also argued that the efficiencies from the transaction were necessary to enable the parties to compete better against Netflix and, perhaps, to change their model to add or grow an on-line component. The Commission, at least at the staff level, had likely reached some tentative ideas about effects by the time they went to court seeking more data.

Were those views correct? Blockbuster and Hollywood still exist but both have closed numerous stores since abandoning the transaction. Blockbuster declined from 5,696 stores in late 2005 to 4,585 stores in 2009, and Hollywood from 1,920 stores in 2003 to 1,646 stores in 2008 (even after its acquisition by Movie Gallery). Meanwhile, Netflix's sales grew from \$500 million in 2004 to \$1.3 billion in 2008. It may be that Commission staff predicted this shift, but nevertheless determined that sufficient numbers of consumers would continue to rent from bricks and mortar stores that anticompetitive effects from the combination were likely. But if they did not anticipate the rate of this dramatic shift, then they should ask why not—and what they might do differently in a similar case next time—to make better predictions about the changing dynamics of a market.

III. ENTRY

Entry is another area in which it may be fairly easy to determine whether the agencies' predictions are accurate. There are undoubtedly cases where the government had no concerns about a transaction, because they believed new entry would thwart any possible anticompetitive conduct. They can look to see whether, in fact, entry occurred. If it did, then their conclusion about ease of entry was correct. If it did not, then the analysis becomes a little more complicated. It may be that no entry occurred because the parties did not attempt to engage in any anticompetitive conduct, knowing that entry would occur if they did. But, as a basic check on what has happened post-transaction, the agencies can ask customers whether they believe the market is as competitive now as it was prior to the merger.

Equally, if not more interesting, are those occasions in which the agencies blocked a deal—and yet the entry that the parties predicted occurred anyway. An example of this is the supermarket industry in Las Vegas. In 1999, Albertson's sought to acquire American Stores. Las Vegas was among the numerous markets in which there were overlaps. At the time, Wal-Mart was making a steady westward move with its Wal-Mart "Supercenters," which are full-size grocery stores combined with traditional Wal-Mart stores. Although Wal-Mart had not yet entered Las Vegas with Supercenters, the parties argued that such entry was inevitable and would make anticompetitive effects from the transaction implausible in that market. The

Commission disagreed and required Albertson's to divest 19 stores and one undeveloped store site in Las Vegas.⁴

Three years later, the Commission addressed the Las Vegas supermarket much differently. In 2002, Kroger sought to make an acquisition in Las Vegas; it entered into an agreement to acquire 18 Raley's supermarkets. Although that acquisition reduced the number of competitors to the same number that would have remained absent a consent in Albertson's/American Stores, the Commission determined that no remedy was required. It issued a statement on the transaction, the heading of which—"Unanticipated Entry and Expansion Since Issuance of Prior Order Make Anticompetitive Effects Unlikely"—pretty well sums up their analysis.⁵ The Commission noted that since the Albertson's consent agreement, Wal-Mart had opened five Supercenters in Las Vegas. It noted further that: "Wal-Mart's current share of supermarket sales in Las Vegas is significant and is likely to grow. Wal-Mart is not the only *de novo* entrant since 1999; for instance, K-Mart has opened a Supercenter, and King Ranch has entered the market with three supermarkets and a fourth under construction."

The agency also observed "the major competitors in 1999—Albertson's, Kroger, and Safeway Corporation (operating under the Von's name)—have added over 25 new supermarkets in Las Vegas. When accounting for both expansion and entry, the number of supermarkets in Las Vegas has grown by about 45 percent since the Albertson's/American Stores divestiture. Because Las Vegas is a rapidly growing city, the supermarket industry likely will continue to grow." The Statement identified other relevant factors to the decision not to take action, including Raley's declining significance, but entry/expansion was plainly the most significant.

Just three years after it predicted the effects in Las Vegas from the Albertson's/American Stores transaction, the Commission called the intervening entry and expansion there "unanticipated." It would be interesting to know why the Commission's 1999 prediction was inaccurate. Did they not see the tremendous growth in the Las Vegas population? Did they doubt Wal-Mart's western push? Did the expansion by other competitors come only in response to Wal-Mart's entry and thus could not have been predicted by then-current market conditions? The Commission may well have answered these questions internally in making its decision on the Kroger transaction, but it is important that any learning that is more broadly applicable to general entry analysis be incorporated in any revisit of the Merger Guidelines.

IV. INNOVATION

Among the questions the agencies ask is whether the Guidelines should address more explicitly "the non-price effects of mergers, especially the effects of mergers on innovation."⁶ While the agencies, particularly the FTC in pharmaceutical cases, have brought enforcement actions based on a "reduction in innovation" theory, they have never put forth guidelines on the subject. There is every reason to question whether they should do so now. The literature is

⁴ Agreement Containing Consent Order, Albertson's, Inc., File No. 981 0339 (FTC 1999) available at <http://www.ftc.gov/os/1999/06/alameristoresagree.pdf>.

⁵ Press Release, Fed. Trade Comm'n, Investigation of Kroger/Raley's Supermarket Transaction Closed (Nov. 13, 2002) available at <http://www.ftc.gov/opa/2002/11/krogerraley.shtm>.

⁶ Horizontal Merger Guidelines Questions, *supra* note 3.

at best mixed on the question of whether a reduction in the number of research “competitors” can be presumed to adversely affect the likelihood of innovation.⁷ Before the agencies issue guidelines on this subject, they should undertake a serious examination of whether transactions that combined two innovators ever harmed consumers. Did the would-be merging parties bring to market products in a reasonable period of time? Were they ahead of other competitors in doing so? By way of example, much was made in the Ciba/Sandoz case of the need to require a licensing remedy, since Ciba and Sandoz “were two of only a few” entities capable of commercially developing gene therapy products and controlled substantial proprietary rights and patents.⁸ Yet, twelve years later, there are no gene therapy products on the market. In retrospect, there would seem to have been no likelihood of anticompetitive effects from that transaction to justify a remedy.

V. EXITING ASSETS

Another area where it may not be difficult to assess whether the agencies’ predictions were correct is in the area of exiting assets. There are many transactions where the agencies hear from the merging parties that they will be forced to exit the market absent the proposed transaction. The agencies typically meet these arguments with great skepticism—and perhaps appropriately so. But there are situations in which companies did exit after a transaction was blocked. The agencies could study these transactions to learn whether their skepticism was misplaced.

One example was Kroger’s proposed 2000 acquisition of Winn-Dixie’s operations in Dallas/Ft. Worth and a few surrounding areas. The parties argued that, absent the transaction, Winn-Dixie would soon exit. It had no immediate plans to exit, but its financial condition and competitive position made it difficult, if not impossible, to survive. The Commission nevertheless blocked the transaction. Within two years, Winn-Dixie exited. It did so in the face of competition from numerous sources, including substantive entry and expansion, which the parties had argued was coming. It is possible the Commission would have blocked the transaction anyway, on the grounds that two years of competition, even from a weakened competitor, was worth it by concluding that (i) intense rivalry between Kroger and Winn-Dixie existed; (ii) it would continue; and (iii) other rivals would not replace the competition between them if the transaction was to occur. Yet, within about two years, Winn-Dixie did exit the Dallas/Ft. Worth market in the face of dramatic competition from numerous other players. And, Kroger acquired a number of the Winn-Dixie stores. Other competitors also acquired some of the Winn-Dixie stores, and many other stores simply went dark. Had the Commission known that would be the result after a limited period of continued competition, would they have challenged the transaction?

Another interesting “exiting asset” case is the Commission’s challenge last year to CCS’s proposed acquisition of Newpark Environmental Services. Both companies were providers of waste disposal services to the offshore oil and natural gas exploration and production industry. CCS argued that, absent the transaction, the economics of the business would force it to exit. In

⁷ See Dennis W. Carlton & Robert H. Gertner, *Intellectual Property, Antitrust and Strategic Behavior*, in 3 INNOVATION POLICY AND THE ECONOMY.

⁸ In re *Ciba-Geigy*, FTC Docket No. C-3725 (Mar. 24, 1997), available at <http://www.ftc.gov/os/1997/04/c3725cmp.pdf>.

response, the Commission press release said “CCS’s last-minute threats to shut down its entire Gulf Coast business if the merger is challenged are mere pretext and cannot justify this anticompetitive transaction.”⁹ The parties abandoned the deal, and, thereafter, CCS notified customers that it would stop providing service in the Gulf Coast and has not re-entered.

VI. COMPETITIVE EFFECTS

Without question, competitive effects is the most difficult area to assess whether the agencies got it right. When the DOJ closed its investigation of Whirlpool’s acquisition of Maytag, it pointed to strong rivals, newer entrants, and substantial efficiencies.¹⁰ Three years later, then-Assistant Attorney General Tom Barnett gave a speech in which he reported on analysis done by the Division that, while not dispositive, suggested there had been no anticompetitive increase in price.¹¹

A recent lawsuit may allow for a comprehensive merger retrospective on the competitive effects of one of the most controversial cases the DOJ handled. In the merger of XM Satellite with Sirius Satellite, the DOJ found the evidence lacking to establish that the combination likely would substantially reduce competition. It concluded that there was limited competition between the parties, the market was not limited to satellite radio in some segments, there were substantial efficiencies, and “the likely evolution of technology in the future” made it unlikely there would be consumer harm.¹² At least some consumers believe DOJ got it wrong. A putative class action alleges that Sirius XM has obtained an unlawful monopoly and abused its monopoly position in the market for satellite digital radio service.¹³ Whether the litigation will provide the facts to help answer the question of whether DOJ got it right or wrong is unclear, but anyone trying to figure out whether merger analysis has been done correctly or should be revised should hope that it does.

⁹ Press Release, Fed. Trade Comm’n, FTC Moves to Block CCS’s Proposed Acquisition of Rival Newpark Environmental Services (Oct. 23, 2008) *available at* <http://www.ftc.gov/opa/2008/10/redsky.shtm>.

¹⁰ Press Release, U.S. Dep’t of Justice, Department of Justice Antitrust Division Statement on the Closing of Its Investigation of Whirlpool’s Acquisition of Maytag (Mar. 29, 2006) *available at* http://www.justice.gov/atr/public/press_releases/2006/215326.pdf.

¹¹ Remarks by Thomas O. Barnett, Current Issues in Merger Enforcement: Thoughts on Theory, Litigation Practice, and Retrospectives, June 26, 2009, *available at* <http://www.justice.gov/atr/public/speeches/234537.htm>

¹² Press Release, U.S. Dep’t of Justice, Statement of the Department of Justice Antitrust Division on Its Decision to Close Its Investigation of XM Satellite Radio Holdings Inc.’s Merger with Sirius Satellite Radio Inc. (Mar. 24, 2008) *available at* http://www.justice.gov/atr/public/press_releases/2008/231467.pdf.

¹³ *Blessing et al. v. Sirius XM Radio, Inc.*, Case No. 09-cv-10035 (S.D.N.Y.) December 8, 2009.



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On Revising the *Horizontal Merger Guidelines*

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On Revising the *Horizontal Merger Guidelines*

Luke Froeb¹

I. INTRODUCTION

To determine whether a proposed merger is anticompetitive, one must compare the world without the merger – which is observed – to the world with the merger, which typically is not. Viewed in this way, the primary problem confronting antitrust enforcers is how to draw inference about the unobserved state of the world. The same problem characterizes monopolization or abuse-of-dominance cases, except that the world with the alleged abuse is observed, while the world without the abuse typically is not.²

Enforcement Guidelines can facilitate inference by institutionalizing the language and analytic framework used by enforcers, but they must also be flexible enough to accommodate the many different ways in which firms compete. In this essay, I warn against one change, and advocate for another. Both the warning and the change are done with an eye towards facilitating inference about the competitive effects of mergers.

II. DON'T PRESUME PRICE—OR ANY OTHER FORM OF—COMPETITION

When I was young and in love (with economics), I used to describe the *Horizontal Merger Guidelines* by telling the old joke about a drunk looking for his keys underneath a street lamp. A passer by stops to help him search, and he asks the drunk “are you sure you lost your keys here?”

“No,” replies the drunk, “I lost them over there, but the light is better over here.”

I used to think that the *Guidelines* were the personification of the drunk searching for his keys underneath the street lamp because I thought they forced us to search for merger effects using market share and concentration measures.

Motivated by skepticism, I did research critiquing market delineation,³ and spent time developing tractable oligopoly models that could be used instead of shares and concentration⁴

¹ William Oehmig Associate Professor of Management at the Owen Graduate School of Management, Vanderbilt University. I want to acknowledge useful discussions with Tim Muris, Mike Vita, Greg Werden, and Lindsay McSweeney.

² James Cooper, Luke Froeb, Daniel O'Brien, & Michael Vita, *Vertical Antitrust Policy as a Problem of Inference*, INT'L J. INDUSTRIAL ORG., 23, 639-664 (2005). Available at SSRN: <http://ssrn.com/abstract=699601>.

³ Gregory Werden & Luke Froeb, *Correlation, Causality, and all that Jazz: the Inherent Shortcomings of Price Tests for Antitrust Market Delineation*, REV. INDUSTRIAL ORG. 8, 329-354 (June, 1993); reprinted in 28 J. REPRINTS FOR ANTITRUST L. & ECON. 1, 175 (1998). See Also, Luke Froeb & Gregory Werden, *The Reverse Cellophane Fallacy in Market Delineation*, REV. INDUSTRIAL ORG. 7, 241-247 (1992) and Luke Froeb & Gregory Werden, *Residual Demand Estimation for Market Delineation: Complications and Limitations*, REV. INDUSTRIAL ORG 6, 33-48 (1991) 33-48, reprinted in 28 J. REPRINTS FOR ANTITRUST L. & ECON. 1, 357 (1998).

⁴ We found that market shares and concentration were lousy predictors of merger effects for two reasons:

- market delineation draws bright lines – between “in” and “out” of the market – where there none; and
- shares are often poor proxies for the competitive significance of firms, especially in differentiated products industries.

to predict merger effects. “Merger Simulation,” as it came to be known, caught on and eventually took off.⁵ I became an advocate of the methodology, and left the Justice Department for academia where the bulk of my research was devoted to modeling competition in different settings, and the loss of competition following merger.⁶

By the time I returned to the agencies in 2003, Merger Simulation was being used, or mis-used, in more merger cases than it probably should have been. It was almost as if the drunk had moved on to the next street lamp, and begun looking there for his keys. Subsequently, I spent time critiquing the mechanistic application of merger simulation to different settings, and warned economists to make sure that their models could accurately characterize observed competition before using them to forecast the changes in competition following merger.⁷

I also came to realize that my initial impression of the *Horizontal Merger Guidelines* had been wrong. I now appreciate them for giving us a common framework and language for analyzing mergers without forcing us to look for merger effects in a pre-determined place. The *Guidelines*, as currently written, are pretty clean and short, but they are flexible enough to accommodate advances in our understanding of the many different ways in which firms compete⁸ and how mergers affect such competition.

For example, in recent years competition agencies from around the world have used the *Guidelines* framework—or one very similar to it—to challenge mergers in industries and markets where firms compete in auctions,⁹ by bargaining,¹⁰ by using promotions and advertising,¹¹ by setting capacity, and by managing revenue or yield.¹² The *Guidelines* hypothetical monopolist tells attorneys and economists to look for ways in which market power would be exercised, depending on the particular setting and the form that competition takes. Any revision to the *Guidelines* that presumes a certain form of competition, e.g., that firms compete by simply setting price, would make it more difficult for the *Guidelines* to accurately characterize existing competition and to predict the loss of competition following merger or

Luke Froeb, Timothy Tardiff, & Gregory Werden, *The Demsetz Postulate and the Effects of Mergers in Differentiated Products Industries*, ECONOMIC INPUTS, LEGAL OUTPUTS: THE ROLE OF ECONOMISTS IN MODERN ANTITRUST, (ed. Fred McChesney)1998.

⁵ See Gregory Werden & Luke Froeb, *The Effects of Mergers in Differentiated Products Industries: Logit Demand and Merger Policy*, J. L., ECON., & ORG. 10, 407-426 (1994), reprinted in ANTITRUST AND COMPETITION POLICY (ed. Andrew N. Kleit, 2005) and Gregory Werden & Luke Froeb, *Simulation as an Alternative to Structural Merger Policy in Differentiated Products Industries*, THE ECONOMICS OF THE ANTITRUST PROCESS, Ch. 4 (eds. Malcolm Coate & Andrew Kleit), 1996.

⁶ Luke Froeb & Gregory Werden, *An Introduction to the Symposium on the Use of Simulation in Applied Industrial Organization*, 7 INT’L J. OF THE ECON. OF BUS. 2, 133-137.

⁷ Gregory Werden, Luke Froeb, & David Scheffman, *A Daubert Discipline for Merger Simulation*, 18 Antitrust 3, 89-95 (Summer, 2004).

⁸ Gregory J. Werden & Luke M. Froeb, *Unilateral Competitive Effects of Horizontal Mergers*, in HANDBOOK OF ANTITRUST ECONOMICS, 43-104 (ed. Paolo Buccirossi, 2007). Available at SSRN: <http://ssrn.com/abstract=927913>

⁹ Lance Brannman & Luke Froeb, *Mergers, Cartels, Set-Asides and Bidding Preferences in Asymmetric Second-price Auctions*, 82 REV. ECON. & STATISTICS 2, 283-290 (2000).

¹⁰ 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, (ed. W. Dale Collins, 2008). Available at SSRN: <http://ssrn.com/abstract=956400>

¹¹ Steven Tenn, Luke Froeb, & Steven Tschantz, *Merger Effects When Firms Compete by Choosing Both Price and Advertising*, Owen Working paper (2007). Available at SSRN: <http://ssrn.com/abstract=980941>

¹² Luke Froeb, Steven Tschantz, & Philip Croke, *Bertrand Competition with Capacity Constraints: Mergers Among Parking Lots*, 113 J. ECONOMETRICS 1, 49-67 (March, 2003).

monopolization. Specifying the form that competition takes, without taking account of how firms actually compete, would only send us to another street lamp.

In particular, I think it is really important that the *Guidelines* not be re-written into a dense, lengthy catalog of possibilities (like the U.K.'s latest guidelines); or that it include discussions of non-horizontal theories of harm (the U.K. guidelines serve as a good warning here as well). The theory of harm should flow from the facts and particulars of the industry, not the other way around.

III. IN RARE CASES, ALLOW ANALYSIS TO BYPASS MARKET DELINEATION

Despite my appreciation for the *Guidelines*, I do have one suggestion for change: In the rare case where there is better information about the effects of the merger than there is about the relevant market, I would change the *Guidelines* to allow analysis that bypasses market delineation.

My attorney colleagues would immediately point me to section 7 of the Clayton Act that seems to demand market definition because of its reference to a "line of commerce" and "section of the country." Indeed, Judge Brown in *Whole Foods* said that the FTC's proposal to dispense with market definition was "in contravention of the statute itself."

However, I would naively point them to section 1 of the Sherman Act that dispenses with market definition in establishing market power or monopoly power; and in establishing anticompetitive effects under the rule of reason. Why should it be different for mergers?

For consummated mergers, like the FTC's *Evanston* case, effects were proven directly; and in many unilateral effects cases, "more direct" proof of effects is possible. In the *Oracle* case, for example, the court encouraged the use of merger simulation instead of unreliable market share data. If we view market delineation as a means to the end of predicting merger effects and we have better information about the end, "why bother" with the means?¹³

IV. CONCLUSIONS

The *Horizontal Merger Guidelines* have brought discipline to the unruly world of merger analysis by giving us a common framework and language for analyzing the competitive effects of mergers. The *Guidelines* have also facilitated international convergence and provided guidance to courts and other regulatory agencies on a wide range of enforcement issues that require market definition. They have been proven flexible enough to accommodate advances in our understanding of the myriad ways in which firms compete and how mergers affect such competition. Let's keep it that way.

¹³ William Blumenthal, *Why Bother?: On Market Definition under the Merger Guidelines*; Statement before the FTC/DOJ Merger Enforcement Workshop, Washington, DC, February 17, 2004, available at <http://www.justice.gov/atr/public/workshops/docs/202600.htm> (last visited December 4, 2009).



Revising the U.S. Merger Guidelines

James Langenfeld

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Revising the Merger Guidelines

James Langenfeld¹

I. INTRODUCTION

The current U.S. Horizontal Merger Guidelines (“HMGs”) state: “[t]he Guidelines are designed primarily to articulate the analytical framework the Agency applies in determining whether a merger is likely substantially to lessen competition . . .”² As such, the Guidelines should provide transparency in current merger policy and enforcement, which is extremely important both in ensuring that businesses understand the ground rules for merger review and in providing self discipline on the agencies. In attempting to provide transparency, the Department of Justice (“DOJ”) and the Federal Trade Commission (“FTC”) have issued and revised Merger Guidelines entirely or in part 5 times over the last 40 years. However, the agencies have not done a significant overhaul of the HMGs since 1992, and have not addressed non-horizontal merger analysis in the Guidelines since 1984.

In September of this year, the DOJ and FTC indicated they are considering updating the HMGs again, but apparently have no plans for revising the guidelines for non-horizontal mergers. In an approach much more open than in past Merger Guideline revisions, the agencies have requested comments on 20 questions, some of which have many subparts.³ The stated goals of this inquiry are to determine if updated guidelines could: (1) more accurately and clearly describe current Agency practice; and (2) reflect and incorporate learning and experience gained since 1992.

As a contributor to the 1992 Guidelines revision and the 1993 Statements of Antitrust Enforcement Policy in Health Care, I am aware of the challenges that face the agencies in achieving consensus on potentially revising a very important policy document. Both the current Horizontal and Non-Horizontal Merger Guidelines in many ways do not reflect the practices of the agencies. In addition, there has been substantial new learning since 1992 on the impact of horizontal mergers, and even more relating to the impact of vertical mergers since 1984.

All agree there are substantial differences between the potential lessening of competition from horizontal and vertical mergers. Horizontal mergers can lead to an immediate reduction in output and increased prices because a merger may make one firm out of two that are constraining each other’s prices, or may make coordination of pricing easier for the remaining firms. In contrast, anticompetitive theories relating to vertical mergers involve the merged firm expanding its output at the expense of its competitors, raising these rivals’ costs, and forcing a reduction in the sales of its competitors by more than any expansion of the merged firm’s output. The mergers that are most likely to cause competitive problems have been and will be horizontal, and revising the HMGs to reflect practice and learning is very important. However, the vertical part of the Non-Horizontal Merger Guidelines is even more out of touch with the

¹ Director, LECG; Adjunct Professor, Loyola University Law School Chicago; former Director for Antitrust, Bureau of Economics, Federal Trade Commission.

² Department of Justice and Federal Trade Commission Horizontal Merger Guidelines (Issued April 1992/Revised April 1997), available at <http://www.ftc.gov/bc/docs/horizmer.shtm>.

³ Available at <http://www.ftc.gov/bc/workshops/hmg/hmg-questions.pdf>.

agencies' practices and learning, and they should also be revised if the agencies are serious about investigating and challenging vertical mergers.

II. REVISING THE HMGS

In the agencies' contemplated revision of the HMGS, it is important to evaluate whether potential changes are related to existing agency practice or new learning. If the analyses or types of evidence being considered for inclusion in the HMGS have been used by the agencies for many years, then the HMGS should mention them with a short explanation as to why the agencies may consider them useful. If a change to the HMGS is based on new learning since 1992, then that change should be very carefully scrutinized. Research on competition and mergers continues over time. Consensus on some analyses eventually occurs, while other analyses fade away. For the HMGS to be useful over time, one needs to be sure that the analyses or types of evidence have been proven reliable, and are likely to continue to be used for some time.

The questions raised by the FTC and DOJ in their consideration of revising the HMGS reflect potential changes in virtually all aspects of those Guidelines. However, at least 12 of the 20 questions focus on market definition, inferences of market power from market shares, non-structural aspects of competitive effects analyses, and how the structural and non-structural analyses should relate to one another. Of the first 12 questions, Questions 2 (with 6 subparts) and 10 (with 8 subparts) sharply focus on the types of evidence and analysis that are used to evaluate competitive effects beyond market structure, presumably making these parts of the HMGS a top agency priority for revision.

Consider Question 2, which states "[s]hould the Guidelines be revised to address more fully how the Agencies use evidence about likely competitive effects that is not based on inferences drawn from increases in market concentration?" For transparency, the agencies presumably should mention the types of non-structural competitive effects evidence that the agencies give substantial weight. Moreover, the current HMGS already list examples of the types of evidence the agencies consider for product and geographic market definition (Sections 1.11 and 1.21), so listing examples of the types of non-structural evidences used in evaluating competitive effects would be an extension of existing practice.

Question 2 goes on to ask "[i]f such revisions are undertaken, what types of such direct evidence are pertinent? How should the following categories of evidence be used?" The agencies then specifically ask about evidence from consummated mergers, "natural experiments," merging firms' post-merger plans, customers' reactions to the merger, merging firms engaging in significant head-to-head competition, and historical evidence of actual or attempted coordination in the industry.

The language in this part of the question is misleading in one important aspect, which has substantive implications. The list of types of evidence contains only one example of "direct" evidence, and that is evidence from a consummated merger. A before-and-after study of the effects of a merger would be a "direct" measure if it controlled for other influences that affected the merged firm (e.g., changes in input costs) and other changes in general supply and demand factors. Since the vast majority of merger inquiries are attempting to analyze a merger that has not yet occurred, it is not surprising that the agencies use indirect evidence of competitive

effects, such as the other 5 examples. In considering whether to mention these other 5 types of evidence in the HMGs, it is important not to treat them as fundamentally superior to the indirect evidence that the agencies and courts have traditionally used—i.e., market shares and changes in market shares. Any changes in the types of evidence or analyses should caution against complete reliance on a single factor, except perhaps for truly direct evidence from a consummated merger.

Of the six areas mentioned in Question 2, the agencies have relied for decades on merging firms' post-merger plans, customers' reactions to the merger, merging firms engaging in significant head-to-head competition, and historical evidence of actual or attempted coordination in the industry. These types of evidence have stood the test of time, and should be mentioned in a revision of the HMGs. Two of the examples have seen substantial new learning since 1992, "natural experiments" and more sophisticated analyses of consummated mergers. These types of evidence, along with any other new learning since 1992, should only be included in a revision if they have been well tested and are also likely to stand the test of time.

"Natural experiments,"⁴ have long been used in antitrust and other economic analyses, including analyses of alleged price fixing and estimation of damages in antitrust cases. They came to the forefront for the first time in merger analysis with FTC's successful challenge of the Staples-Office Depot proposed merger in the 1990s. An important part of the evidence the FTC put forward for both market definition and competitive effects arguably showed lower prices when the two merging firms competed in certain geographic areas, compared to areas where they did not. These analyses included company documents describing lower pricing in regions where more office superstores competed. In addition, there were econometric analyses of prices across geographic areas that measured the impact of the number and identity of office superstore competitors (and other office supply competitors), while attempting to control for important differences across the regions that could also influence prices.

Like other economic analyses, natural experiments analyses in mergers are only useful if (1) they reasonably fit the facts of the case, and (2) employ sound economic methodologies that are based on reliable information. The further away the experiment is from the facts of the case at hand, the less useful it is in assessing competitive effects. Moreover, one needs to check whether the results of the experiment are consistent with other economic analyses. If different aspects of the market are clearly inconsistent with the results of the natural experiment, then the experiment should also be given much less weight. Taking these and other cautions into account, the agencies' use of natural experiments since 1992 and the general acceptance of the analytic approach when done correctly suggest it is appropriate to mention this type of evidence in the HMGs. In addition, briefly explaining the use of natural experiments in the HMGs may influence the courts, which may be focusing too much on requiring exact boundaries for market definition and too little on competitive effects.

This abbreviated review of Question 2 suggests the type of analysis that should be considered before the agencies decide whether and how the HMGs should be updated. Question 3 (b) asks whether the HMGs should include "[h]ow to conduct 'critical loss analysis,' including the proper use of evidence regarding pre-merger price/cost margins." Question 10 (d) asks whether the HMGs should discuss "[t]he role of diversion ratios and price/cost

⁴ For more detail, see Mary Coleman & James Langenfeld, *Natural Experiments*, ISSUES IN COMPETITION LAW AND POLICY, Vol. 1, 743-772, (2008).

margins in evaluating unilateral effects.” Critical loss analysis and diversion analysis can be useful in both market definition and competitive effects analyses, and both have been increasingly used by the agencies since 1992.⁵ More explanation of how the Agencies use critical loss analysis and diversion ratios may be useful in the HMGs. However, careful consideration should be given to any substantial changes in the current HMGs’ market definition approach that critical loss analysis attempts to address, as well as to adding diversion ratios for measuring potential competitive effects. These analyses have developed a great deal since 1992, but there may be less of a consensus on how to use them than other potential revisions.⁶

III. REVISING THE NON-HORIZONTAL MERGER GUIDELINES

Many government officials have highlighted the limitations of the existing Non-Horizontal Merger Guidelines, and there have been calls to update the sections that deal with vertical mergers. In 2005, former Chairman Pitofsky stated that under the 1984 Guidelines none of five recent vertical challenges at that time would have been regarded as violations and “could not have been brought if the vertical guidelines were controlling.”⁷ In contrast to the Horizontal Merger Guidelines that are so influential, the “vertical guidelines have been widely ignored.”⁸

The 1984 Non-Horizontal Merger Guidelines do not acknowledge the possibility of foreclosure as the basis for a merger challenge. Under “Post-Chicago” theories of vertical mergers, a vertically integrated firm could foreclose its rivals if there is “imperfect competition” in the pre-merger and post-merger environment. The literature identifies the two types of foreclosure identified in the investigations and challenges by the agencies: input foreclosure (where the integrated firm seeks to raise rivals’ costs) and customer foreclosure (where the integrated firm seeks to reduce rivals’ revenues). Input foreclosure can follow from a vertical merger when the upstream division of the integrated firm either stops supplying inputs to competitors of its downstream division, or continues to sell at a substantially increased price. Customer foreclosure can occur when an upstream firm acquires a downstream firm and the merger creates an incentive for the upstream firm to foreclose its rivals, leading to increased intermediate and final goods prices.

The FTC and the DOJ have used foreclosure arguments in challenging vertical merger cases.⁹ Research has found that there were 23 merger consents or abandoned mergers that

⁵ See, for example, James Langenfeld & Wenqing Li, *Critical Loss Analysis in Evaluating Mergers*, ANTITRUST BULLETIN, Summer 2001, 299-337.

⁶ See Joseph Farrell & Carl Shapiro, *Improving Critical Loss*, Antitrust Source, (Feb. 2008), available at <http://www.abanet.org/antitrust/at-source/08/02/Feb08-Farrell-Shapiro.pdf>, and Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, (November 25, 2008), available at <http://ssrn.com/abstract=1313782>, compared to Malcolm B. Coate & Joseph J. Simons, *Models, Mathematics and Critical Loss*, (November 3, 2009), available at SSRN: <http://ssrn.com/abstract=1346067>.

⁷ Robert Pitofsky, *Antitrust: Past, Present, and Future of Antitrust Enforcement at the Federal Trade Commission*, 72 U. CHI. L. REV. 209, 221 (2005).

⁸ *Id.* at 220. See also Thomas B. Leary, *The Essential Stability of Merger Policy in the United States*, 70 ANTITRUST L. J. 105, 120 (2002-03) and Timothy J. Muris, *Principles for a Successful Competition Agency*, 72 U. CHI. L. REV. 165, 184 (2005).

⁹ Jeffery Church, *Vertical Mergers*, in 2 ISSUES IN COMPETITION LAW AND POLICY 1455 (Dale W. Collins ed., 2008) at 1460.

involved vertical anticompetitive theories during the 1990s and 3 cases since 2000. Consider a few case examples.

In 1995 the FTC obtained a consent in a merger between workstation manufacturer Silicon Graphics and graphics software firms Alias Research Inc. and Wavefront Technologies Inc. based on input foreclosure theories. Similarly, in 1999 the FTC staff raised input foreclosure concerns regarding book retailer Barnes & Noble's later abandoned acquisition of book wholesaler Ingram.¹⁰ The DOJ challenged AT&T's acquisition of McCaw in the 1990s based on the potential for input foreclosure.¹¹ More recently, the FTC challenged Cytac Corp.'s acquisition of Digene Corp. in 2003 on grounds that included an input foreclosure theory.¹²

Customer foreclosure arguments were used, among others, in the 1997 merger of Cadence Design Systems (an operator of integrated circuit layout environments) and Cooper & Chyan Technology (a producer of integrated circuit routing tool software) that resulted in a consent.¹³ The FTC investigated the merger between Synopsys Inc. (a producer of front end tools for chip design) and Avanti Corp. (a producer of back end tools for chip design) in 2002 on similar grounds. Although FTC decided to close its investigation of the merger, Commissioner Leary cited the use of customer foreclosure theories in understanding the anticompetitive effects of the merger.¹⁴

It is not surprising that the Antitrust Modernization Commission recommended updating the Non-Horizontal Merger Guidelines to incorporate the new thinking about vertical mergers and to provide transparency in how the agencies analyze these non-horizontal mergers.¹⁵ However, there are a number of challenges to revising the Non-Horizontal Merger Guidelines that need to be considered.

First, the current economic models describe possible anticompetitive effects from vertical mergers, but the new economic models depend on a variety of conditions, many that are not easily observed. However, even horizontal mergers of firms in an oligopoly may lead to a variety of changes in the market, depending on assumptions about the ways in which competitors behave that can be difficult to observe. In part, this is why the HMGs devote a great deal of analysis to competitive effects, and may devote more if they are revised.

Second, many of the new economic models do not address all of the potential pro-competitive effects of vertical integration and, in particular, the benefits of eliminating double marginalization in vertical cases. An inquiry into the likelihood of the elimination of "double-marginalization" or other efficiencies can be done, and the agencies have done so in the past.

¹⁰ Richard G. Parker, Senior Deputy Director, Bureau of Competition, Federal Trade Commission, Address at the International Bar Association (Sep. 28, 1999) *available at* <http://www.ftc.gov/speeches/other/barcelona.shtml>.

¹¹ Steven C. Sunshine, Deputy Assistant Attorney General, Antitrust Division, U.S. Department of Justice, Remarks Before the American Bar Association Section of Antitrust Law (Apr. 5, 1995) *available at* <http://www.usdoj.gov/atr/public/speeches/2215.pdf> at 8-11.

¹² See FTC Press Release, *FTC Seeks to Block Cytac Corp.'s Acquisition of Digene Corp.* (June 24, 2002) *available at* http://www.ftc.gov/opa/2002/06/cytac_digene.shtml.

¹³ See FTC complaint in the Matter of Cadence Design Systems, Inc., *available at* <http://www.ftc.gov/os/1997/05/cadence.pdf>; See statements by Commissioners Pitofsky and Steiger *available at* <http://www.ftc.gov/os/1997/05/state01.htm>. Consent was subsequently given on this merger.

¹⁴ *Id.*

¹⁵ Antitrust Modernization Commission, Report and Recommendations 68 (2007), *available at* http://www.amc.gov/report_recommendations/amc_final_report.pdf, at 68.

Third, vertical theories are said to lack any systematic empirical basis. It is true that economic research on vertical restraints has yielded some mixed results, and there is relatively little recent research specifically devoted to the impact of non-horizontal mergers. There is also empirical research questioning whether horizontal merger enforcement has demonstrably improved welfare, but there still is a consensus that some horizontal mergers should be challenged.

Fourth, there were few vertical mergers investigated or challenged under the eight years of the Bush administration. However, there were several notable vertical merger challenges under the Clinton administration. To the extent the Obama administration's non-horizontal merger policy is more like the policy that prevailed under President Clinton than President Bush, there are enough cases that follow the new economic literature to provide guidance for revising the vertical portions of the 1984 Guidelines. It is highly unlikely that economic thinking about non-horizontal mergers will change substantially in the near future, and it is equally unlikely that the types of vertical cases will be radically different than the ones brought in the 1990s.

Finally, there has been a concern that revised guidelines would lead to too much enforcement. Agency staffs, however, would likely limit their investigations to the vertical theories discussed in the revised guidelines, which presumably would not result in over-enforcement.

Given the substantial new thinking that has occurred since 1984 and the agencies' track record on the types of vertical mergers that are investigated and challenged, the Non-Horizontal Merger Guidelines should be revised. The format can be similar to that found in the 1984 U.S. and 2007 E.C. Guidelines. That is, the revision should describe a set of theories of anticompetitive effect and the factual circumstances in which those theories may apply. The E.C. Guidelines follow this approach in a structured analysis that applies market power screens, identifies a coherent theory of anticompetitive harm that has factual relevance, and assesses the nature and magnitudes of merger-related efficiencies. In effect, the E.C. has already done much of the difficult work, and the agencies should be able to build on that platform.



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Revising the Merger Guidelines: Second Request Screens and the Agencies' Empirical Approach to Competitive Effects

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Revising the Merger Guidelines: Second Request Screens and the Agencies' Empirical Approach to Competitive Effects

Gregory Leonard & Lawrence Wu¹

I. INTRODUCTION

The U.S. Department of Justice ("DOJ") and the Federal Trade Commission ("FTC") (collectively, "the Agencies") have stated that an update to the Horizontal Merger Guidelines (the "Merger Guidelines") potentially could serve two primary goals. Specifically, the Merger Guidelines could be updated so that they "more accurately and clearly describe current Agency practice" and so that they "reflect and incorporate learning and experience gained since 1992."² We applaud both of these goals.

In general, the Merger Guidelines describe an analytical framework that is useful in giving the business community, the antitrust bar, and consulting economists guidance on how the Agencies will evaluate the likely competitive effects of a proposed transaction. However, two aspects of the Merger Guidelines could benefit from a revision.

First, the Merger Guidelines do not provide guidance on how the Agencies determine whether or not they will issue a Request for Additional Information and Documentary Material (i.e., a "Second Request"). Yet, for many merging parties, guidance on how the Agencies make this initial decision is critical because the receipt of a Second Request implies substantial costs, a lengthier investigation, and delays that could jeopardize the financing of the transaction itself. Thus, a revision that gives greater clarity on the types of evidence and screens that are used in this stage of the investigation will help merging parties and their counsel make more informed decisions as they contemplate the antitrust risk associated with a particular transaction.

Second, the Merger Guidelines offer little guidance regarding the types of empirical evidence and analyses that the Agencies rely upon to determine the likely competitive effects of a proposed transaction. Yet Second Requests typically ask for substantial amounts of data, and, in our experience, the Agencies routinely seek to use these data to implement analyses designed to shed light on the competitive effects of the proposed transaction. Thus, a revision to the Merger Guidelines that provides guidance on the types of empirical analyses that may be undertaken by the Agencies will help the merging parties and the antitrust bar appreciate (a) why the Agencies ask for substantial amounts of data in the Second Request and (b) the variety of empirical questions that the Agencies may ask when evaluating the competitive impact of a proposed transaction.

The nature of the revisions that we are proposing derives from our view that the Merger Guidelines would be more informative and useful if they reflected the actual practices of the Agencies. Revisions of this nature will enhance the transparency of the merger review process,

¹ The authors are economists and Senior Vice Presidents at NERA Economic Consulting. The views expressed are their own and do not necessarily reflect the views of others at NERA.

² "Horizontal Merger Guidelines: Questions for Public Comment," FTC, September 22, 2009, p. 1 (available at <http://www.ftc.gov/bc/workshops/hmg/hmg-questions.pdf>).

which may help merging parties and their counsel more accurately evaluate the antitrust risks of a particular transaction. Moreover, the addition of an explicit empirical framework to the Merger Guidelines will give merging parties and their counsel a better understanding of the kinds of data they will need to collect and the types of empirical analyses they may want to consider presenting to the Agencies. The guidance will allow merging parties and their counsel to focus their efforts on analyses that are likely to be of greater use and interest to the Agencies and to provide this information in a more efficient and timely manner.

II. SUGGESTION 1: REVISE THE MERGER GUIDELINES TO EXPLICITLY IDENTIFY THE EVIDENCE AND INDICIA UPON WHICH THE AGENCIES RELY TO DETERMINE WHETHER A SECOND REQUEST WILL BE ISSUED

The timing and procedures mandated by the Hart-Scott-Rodino (“HSR”) Act have created what amounts to a two-stage process for merger review by the Agencies. In the first stage, during the first 30 days after the HSR filing, the Agencies apply an initial screen to decide whether the competitive implications of a proposed transaction should be subjected to a deeper investigation. If additional investigation is needed, the Agencies issue a Second Request and, in the second stage, proceed with a deeper investigation to determine whether there is a likelihood of significant anticompetitive effect that warrants challenging the merger.

As we understand it, the Agencies have not codified formal procedures that describe or govern how they conduct the screening process in the first stage to determine whether they should issue a Second Request. Instead, it seems that a case-by-case approach is used, with reference to the general principles contained in the Merger Guidelines. While any screening process will necessarily incorporate case-specific information, it would be useful to have an explicit statement of the approach to screening that the Agencies have been using as a matter of practice, as well as the general criteria that will be relied upon to determine whether a Second Request is likely to be issued.

In our experience, the Agencies focus their efforts in the first stage on gathering the information and data needed to reach preliminary judgments on market definition and the effect of the transaction on the structure and concentration of the likely relevant market. In addition, the Agencies begin the process of articulating the mechanism by which the proposed transaction could harm consumers and competition. To do this, the initial investigation in this stage of the investigation typically involves the following: (a) an assessment of the structure of the market and computation of indicia such as market shares, the Herfindahl-Hirschman Index (HHI), and the number and competitive significance of the major market participants, (b) an evaluation of the merging parties’ 4(c) documents, and (c) interviews with market participants and customers. These are logical first steps in an antitrust analysis, but there is considerable variation across and within the two Agencies in how this initial investigation is executed and how the results are interpreted and weighed.

In articulating the screen that the Agencies have been or will be using to determine which transactions require a Second Request, it would be useful if the Agencies would address the following concepts and principles:

A. The Purpose of Articulating a Screen

Only a limited number of proposed transactions are subject to a Second Request, which implies that the Agencies already apply a screen and, indeed, this is consistent with our experience. Given the limited resources of the Agencies, it is appropriate that the Agencies focus their efforts on an evaluation of the impact of transactions that are more likely to raise competitive concerns. At the same time, a well-articulated screen would provide clarity and guidance to merging parties and the antitrust bar generally. Such clarity would allow the merging parties the opportunity to evaluate the antitrust risks of proposed transactions prior to a merger agreement and to plan for the expenses and time for the merger review that is likely to occur. For merging parties, reducing risk and uncertainty is valuable.

B. The Need for a Screen that Minimizes the Expected Costs Associated with False Positives and False Negatives

The use of a screen is part of a sound antitrust enforcement policy, and one that is consistent with the principles of decision theory. Consider the following, admittedly stylized, description of the Agencies' problem. At any given moment in time, the Agencies are presented with a multitude of potential transactions. While the competitive effects of some potential transactions may be clear, there generally is a substantial gray area, which presents the Agencies with the following dilemma: Which transactions should they investigate further and which ones should they grant early termination?

If the Agencies had perfect foresight and the ability to predict perfectly which transactions are likely to harm consumers and competition, then there would be no need for a screen. Of course, this is not the case. In making a decision, the Agencies face two types of potential errors: false positives (i.e., determining that a transaction is anticompetitive when it is not) and false negatives (i.e., determining that a transaction is not anticompetitive when it is likely to harm consumers and competition). Both types of errors reduce social welfare relative to making the correct decision. In the case of a false positive (also known as a Type I error), there are costs to the Agencies in the form of allocating resources to evaluating transactions that are not likely to raise competitive concerns, as well as costs to the merging parties in the form of expenses and delays and to consumers in terms of delays in receiving the benefits of pro-competitive mergers. In the case of a false negative (also known as a Type II error), there are costs to consumers in the form of a transaction that is allowed to proceed, with the result being harm to competition and higher prices or lower quality.

In seeking to maximize social welfare when there is imperfect information or uncertainty, one approach is to use Bayesian optimal decision rules to make a decision (e.g., whether to issue a Second Request or not). In this case, that would involve minimizing the sum of the expected social welfare costs of false positives and false negatives. Using a Bayesian approach, the Agencies would consider the expected costs using the probability distribution that it has on the true competitive effect of a proposed merger. Where does this probability distribution come from? It would come mainly from experience that the Agencies have from previous mergers they have evaluated (the "prior distribution"), which is updated for the specific merger in question (to obtain the "posterior distribution") after the Agencies evaluate

information that they obtain in the first stage (i.e., the “signal”).³ Decision theory suggests that the weight afforded to the signal (as opposed to the prior distribution) by the decision maker should depend on the signal’s precision. The precision of the signal—that is, the information that is available to the Agencies in the first stage of its merger review—is likely to vary from transaction to transaction; as a result, the weight that is placed on the signal is likely to vary from merger to merger.

An appropriate screening process drawing on the stylized Bayesian approach described above can improve the Agencies’ decision-making process by reducing the probability of error.⁴ In this way, the development and use of a clearly-defined merger screen can be valuable in helping the Agencies target their Second Requests more accurately, which means that Second Requests are issued on transactions that are most likely to be anticompetitive, but not issued on transactions that are less likely to be anticompetitive. The Agencies may well want to be conservative in their enforcement efforts by accepting a higher level of Type I error, but we hope that, over time, the Agencies can perform the research needed to update their decision rules in a way that will improve the merger review process for all. If the Agencies adopt this approach, we hope they will revise the Merger Guidelines to provide insight as to what signals they use and what weight they place upon them in the screening process.⁵

C. The Role of Market Definition, Market Shares, and the HHI in the Screening Stage

Market definition is one of the questions that, in our experience, the Agencies typically address in the first 30 days of their analysis, yet it is also an issue that often requires substantial empirical inquiry. Indeed, defining relevant markets—particularly when there are potential scores of local and regional markets—can be time-consuming and costly for both the Agencies and the merging parties. Thus, it would be useful for the Agencies to state how they evaluate and assess evidence on market definition in the first 30 days, particularly when there is substantial debate or uncertainty about the extent of the relevant market.

Returning to decision theory, the weight given to a signal by a decision maker should depend upon the precision of the information provided by the signal. The same type of signal may be precise in one situation and imprecise in another situation. For example, for transactions where market definition is uncertain and the conclusions to be drawn from the market

³ In practice, the Agencies might adjust the updating process over time to reflect, for example, advances in economic theory, learning on the types of information that are most valuable in the screening process, and the availability of newer and better data through advances in information systems and technologies.

⁴ This benefit needs to be weighed against the cost of obtaining the signal in cases where obtaining the signal is costly.

⁵ While it may be difficult to quantify exactly the weights that would be ascribed to information that is available in the screening process, the approach that is currently in the Merger Guidelines may provide a useful model for explaining in a qualitative sense how information is weighed. For example, in discussing cognizable efficiencies, the Merger Guidelines state that:

[t]he greater the potential adverse competitive effect of a merger—as indicated by the increase in the HHI and post-merger HHI from Section 1, the analysis of potential adverse competitive effects from Section 2, and the timeliness, likelihood, and sufficiency of entry from Section 3—the greater must be cognizable efficiencies in order for the Agency to conclude that the merger will not have an anticompetitive effect in the relevant market.” (Merger Guidelines, Section 4.0).

A discussion of this kind may be one way to describe the relative importance of the various types of information that may be available in the first stage of the merger review process.

definition vary significantly depending on the chosen market definition, the precision of the signal provided by market definition is relatively low. Decision theory would suggest that little weight be afforded to the market definition in the case of such transactions. Again, we presume that the Agencies take these considerations into account. It would be useful for the Agencies to articulate the conditions under which market definition, market shares, and the HHI are given substantial weight in the first stage and when they are not.⁶

D. The Use of Information Contained in the Merging Parties' 4(c) Documents

The Agencies recognize that the documents that are often included in the merging parties' 4(c) documents were created for business purposes and not for the purpose of antitrust market definition. Indeed, the Agencies have made clear that they do not assume that the use of the term "market" in a 4(c) document is a relevant market for the purposes of merger review.⁷ Insights from the Agencies' experience in reviewing 4(c) documents would be particularly valuable.

E. The Use of Customer Interviews

The Agencies have stated that they will rely on evidence from and about customers.⁸ For example, the Agencies will interview and obtain data and documents from customers regarding their views of the market, the merging parties, and the competitors of the merging parties. It would be useful for the Agencies to discuss how they evaluate such evidence. If the views regarding a proposed transaction are uniform—either in support of a transaction or against it—then, for the purpose of determining whether a Second Request is warranted, the Agencies may want to discuss how they consider and weigh that evidence against potentially contradictory evidence from other sources (e.g., the 4(c) documents). However, the views of customers are often mixed or uncertain. Again, this is a situation where the signal is relatively imprecise. In these situations, it would be especially important for the Agencies to clarify how they interpret and weigh such information in the screening process.

F. The Use of Other Market Data

It may be possible to develop other types of evidence that could be used in the screening process. For example, it may be possible to compute reliable estimates of diversion ratios based on historical consumer data or to determine the competitive significance of key competitors based on win-loss data. In many cases, these types of studies can be performed using aggregate data or data that are informative yet easily obtained. While the kind of information that is part of a typical Second Request would allow for more sophisticated analyses, it would be valuable if the Agencies would consider discussing the types of studies that they have found useful historically in determining whether a Second Request is warranted or not.

G. Consideration of Efficiencies and the Overall Rationale for the Transaction

The types of evidence that the Agencies consider in determining whether to issue a Second Request should include information provided by the merging parties regarding the

⁶ It would also be useful for the market concentration and HHI thresholds in the Merger Guidelines to be revised to reflect actual Agency practice. In our experience, the existing thresholds have little relationship to actual practice.

⁷ DOJ and FTC, "Commentary on the Horizontal Merger Guidelines," March 2006, p. 11.

⁸ DOJ and FTC, "Commentary on the Horizontal Merger Guidelines," March 2006, p. 9.

rationale for the transaction and the potential efficiencies. The Agencies already recognize that efficiencies are important in answering the ultimate question of whether a transaction is likely to harm consumers or competition, but it is unclear how and whether efficiencies are considered in the first 30 days. This is particularly important because it may not be possible to complete a full analysis of the potential efficiencies and synergies before the Agencies have to issue a Second Request. The Agencies may have experience that they may be able to articulate regarding the types of documentation that they have found useful, and such guidance would be valuable. For example, it would be useful to know how the Agencies weigh third party consulting reports on efficiencies that have been commissioned by the parties.

In summary, we recognize that the Agencies have considerable experience in evaluating and screening proposed transactions, particularly for the purpose of determining which transactions should be subjected to a Second Request. At present, the Merger Guidelines do not describe how this important initial phase of the analysis is conducted. Because this kind of guidance would be of enormous value to the merging parties and the antitrust bar, it would be useful for the Agencies to develop a systematic screening process and to consider a revision of the Merger Guidelines that discusses the general parameters of this screening process. Such a discussion might include the types of information that would be considered and how much weight would be assigned to them, the types of analyses that are likely to be performed, and the criteria that are likely to be employed to determine whether a Second Request will be issued.

III. SUGGESTION 2: DESCRIBE THE EMPIRICAL APPROACHES THE AGENCIES USE TO EVALUATE THE POTENTIAL COMPETITIVE IMPACT OF A PROPOSED TRANSACTION

We believe that it would be extremely useful for the Agencies to revise the Merger Guidelines so as to more explicitly reflect the empirical focus of the Agencies' actual practice. A typical Second Request seeks substantial amounts of data and information concerning competition in the marketplace and, in our experience, the Agencies undertake empirical analyses of these data and information in the second stage of the investigation. Moreover, with increasing access to better and more useful data, the Agencies, in many cases, have been focusing their efforts in the second stage of the merger review process on determining competitive effects using information other than market shares and market concentration.

However, a reading of the Merger Guidelines, as currently written, gives the false impression that the Agencies place substantial weight on market share and concentration statistics rather than empirical analysis when evaluating the competitive impact of a proposed transaction. Given that this impression is, in fact, inconsistent with the practice of the Agencies, a revision that emphasizes empirical evidence and outlines the types of empirical analyses that the Agencies use in second stage investigations would be valuable.

A. Guidelines that Reflect the Shift Away from Market Shares and Concentration Towards Direct Evidence of Competitive Effects

The practice of the Agencies to focus on market shares and concentration in the first stage of the merger review process is consistent with the Agencies' own statements that market shares and concentration are only a "starting point for analyzing the competitive impact of a merger" and that the Agencies "do not make enforcement decisions solely on the basis of

market shares and concentration....."⁹ Indeed, the Agencies have cleared transactions that might, on the surface, appear to be mergers to monopoly (e.g., the DOJ's clearance of a merger of two satellite radio providers, HM Satellite Radio Holdings Inc. and Sirius Satellite Radio Inc., in 2008).¹⁰ Also, as noted by the FTC, "[w]here direct evidence of anticompetitive effects is presented, courts have recognized that traditional market definition may be altogether unnecessary to the adjudication of antitrust claims."¹¹

A revision that deemphasizes market share and concentration statistics as evidence of competitive effects would be valuable because it would eliminate what we view to be a distortion that is induced by the current emphasis in the Merger Guidelines on market definition shares and concentration: an inefficient allocation of resources to the task of defining markets. By revising the Merger Guidelines in the ways we suggest below, with a greater emphasis placed on empirical evidence that gets at the heart of the competitive effects question, the efforts of merging parties and the Agencies would be more efficiently directed.

B. The Agencies' Empirical Focus on Competitive Effects Analysis Suggests an Approach that Integrates Analyses of Competitive Effects, Entry, and Efficiencies

The Agencies' empirical focus also raises a question about whether it continues to make sense to distinguish competitive effects analysis as separate and distinct from inquiries about entry and efficiencies. In the end, the ultimate question is whether or not a proposed transaction is likely to lead to higher prices, lower quality, or reduced innovation. Indeed, as stated in the DOJ and FTC Commentary on the Horizontal Merger Guidelines:

The Guidelines' integrated process is "a tool that allows the Agency to answer the ultimate inquiry in merger analysis: whether the merger is likely to create or enhance market power or facilitate its exercise." Guidelines § 0.2. At the center of the Agencies' application of the Guidelines, therefore, is competitive effects analysis. That inquiry directly addresses the key question that the Agencies must answer: Is the merger under review likely substantially to lessen competition? To this end, the Agencies examine whether the merger of two particular rivals matters, that is, whether the merger is likely to affect adversely the competitive process, resulting in higher prices, lower quality, or reduced innovation.¹²

This is the right approach, and one that appropriately focuses the inquiry on the overall competitive impact of the proposed transaction. But entry and efficiencies are important determinants of what this overall competitive impact will be. The questions typically addressed include the following: Will new entry or expansion by existing incumbents be effective in preventing prices from rising post-merger? Will the efficiencies and cost savings provide the merged firm the incentive to lower its prices? Does excess capacity give the merged entity an incentive to lower prices? There is no reason to draw lines between what are currently termed "competitive effects" questions, "entry" questions, and "efficiencies" questions.

⁹ DOJ and FTC, "Commentary on the Horizontal Merger Guidelines," March 2006, p. 15.

¹⁰ In the case of XM and Sirius, one concern was whether the transaction would create a monopoly in a market limited to satellite radio. See *Statement of the Department of Justice Antitrust Division on its Decision to Close its Investigation of XM Satellite Radio Holdings Inc.'s Merger with Sirius Satellite Radio Inc.* (available at http://www.justice.gov/opa/pr/2008/March/08_at_226.html).

¹¹ See Proof Brief for Appellant Federal Trade Commission, *FTC v. Whole Foods Market, Inc. and Wild Oats Markets, Inc.*, p. 38, footnote 26 (available at <http://www.ftc.gov/os/caselist/0710114/0710114.shtm>).

¹² DOJ and FTC, *Commentary on the Horizontal Merger Guidelines*, March 2006, p. 2.

The questions above are the right questions to ask, and a revision to the Merger Guidelines that emphasizes these lines of inquiry as part of an integrated analysis will be consistent with not only the way economists tend to approach these questions, but also the Agencies' focus on the ultimate competitive impact of a proposed transaction.

C. Merger Guidelines that Provide Guidance on the Types of Empirical Evidence that the Agencies Find Informative and Useful

Assuming a revision that refocuses the Merger Guidelines on analyzing empirical evidence in merger investigations, the following are four types of analyses that would benefit from further explicit discussion in the Merger Guidelines:

1. Natural Experiments:

It has become common for analysts to identify events referred to as "natural experiments" that have the potential to provide evidence useful for assessing the likely competitive effects. For example, it may be possible to analyze the effects of previous entry or expansion by rivals, repositioning, or capacity additions or subtractions by the merging parties (or their rivals). These events may allow one to test assumptions regarding the way in which competition works.¹³ However, while such events can provide useful information, one must check that the conditions required to draw valid conclusions in fact hold. Not all events provide a valid "natural experiment." Randomized experimental design leads to valid conclusions because application of the "treatment" is necessarily uncorrelated with characteristics of the study subjects. In a parallel sense, an event is a true "natural experiment" only if the incidence of the event is uncorrelated with the effect of the event. However, because the event is natural and not controlled, there is no guarantee that this zero correlation property holds. One must carefully evaluate whether that is the case in a given situation. For example, the occurrence of entry into a geographic area may be (negatively) correlated with the likely impact of the entry in that area. In that case, entry may not be a valid "natural experiment," at least in the way entry is commonly used in merger analysis. Another problem with supposed "natural experiments" is that they may fail to provide information that is relevant to the competitive effects question at hand. We suggest that the Merger Guidelines be revised to discuss how and when "natural experiments" will be used by the Agencies.

2. Merger Simulation:

Merger simulation can be a valuable tool in merger analysis.¹⁴ However, as with all tools (including "natural experiments," as described above), merger simulation will produce reliable results only when used in appropriate circumstances using appropriate modeling assumptions. For example, the use of short cuts—e.g., the use of information on market shares to compute cross elasticities of demand (or diversion ratios)—will often fail to accurately reflect the true competitive situation, resulting in unreliable merger simulation results. For this reason, cross elasticities should be based on empirical analyses of customer switching behavior rather than market shares. Similarly, making an invalid assumption about the form of competition can lead

¹³ We have written on how to analyze such events. See Gregory K. Leonard & Lawrence Wu, *Assessing the Competitive Effects of a Merger: Empirical Analysis of Price Differences Across Markets and Natural Experiments*, ANTITRUST (2007).

¹⁴ See Gregory K. Leonard & J. Douglas Zona, *Simulation in Competitive Analysis*, ISSUES IN COMPETITION LAW AND POLICY (2008).

to poor predictions of a merger's effects. Thus, assumptions regarding the form of competition should be subjected to tests of validity where possible. In addition, while efficiencies can be modeled and accounted for in a merger simulation, other types of competitive factors (e.g., repositioning) may be more difficult to incorporate. In situations where such factors are important, the results of a merger simulation analysis may need to be adjusted or weighed appropriately to account for the impact of these other factors. We suggest that the Merger Guidelines be revised to discuss when and how merger simulation will be used by the Agencies.

3. Buyer Power:

It is sometimes asserted that a merger will not have an anticompetitive effect on a given buyer because the buyer is large and, thus, has countervailing buyer power that would prevent the merged firm from raising price to that buyer.¹⁵ We note that—by itself—this proposition is no more valid than the proposition that a seller with a large market share necessarily has market power. We suggest that the Merger Guidelines be revised to discuss the conditions under which a “buyer power” argument could make economic sense. For example, in a situation where a fixed cost investment would be required to develop a substitute product or supplier, it is possible that a large buyer may find it profitable to make such an investment following a price increase (given the large volume over which the fixed investment cost would be spread) whereas a small buyer may not, which may prevent the merged firm from increasing price to the large buyer. Because the conditions for such buyer power to be effective in disciplining pricing post-merger are likely to vary from market to market and buyer to buyer, it would be valuable for the Agencies to discuss their empirical approach to this important issue.

4. Efficiencies:

As discussed above, efficiencies often have competitive effects and, thus, should be included as an integral part of the competitive effects analysis, rather than treated as an afterthought. The Agencies have substantial experience in analyzing the competitive effects of marginal cost reductions, and the Agencies' learning and insights could be included in a revised Merger Guidelines. However, the analysis of efficiencies that primarily increase output (e.g., transactions that help to bring a new technology to market) is less straightforward, yet such efficiencies are important, particularly in new and emerging markets. Given the substantial and increasing importance of innovation in the U.S. economy, output-enhancing efficiencies should not be ignored, particularly because they are likely to gain in economic significance. In the case of output-enhancing efficiencies, the benefits must be assessed in terms of consumer surplus or total market output rather than prices or reductions in cost. The “output test” may be useful in this context. If a merger's output-enhancing efficiencies have a pro-competitive effect that exceeds the price effects resulting from the lessening of competition, consumer surplus will increase post-merger. A consumer surplus increase likely coincides with an increase in total market output. Thus, demonstrating that the merger will lead to an increase in output suggests

¹⁵ For example, the Merger Guidelines already note the potential importance of buyer size in its discussion of coordinated interaction. (See Merger Guidelines, Section 2.12.)

that the merger will be overall pro-competitive.¹⁶ We suggest that the Merger Guidelines be revised to address these issues.

In summary, the Merger Guidelines offer little guidance on the empirical evidence and analyses that the Agencies rely on to determine whether a proposed transaction is likely to lead to anticompetitive effects. Yet it is clear that the focus of the Agencies—particularly in the post-Second Request phase—is on empirical analyses that use quantitative methods and, in some cases, merger simulation. A revision that provides guidance on the types of empirical data that are likely to be informative to the Agencies and the kinds of analyses that may be undertaken by the Agencies would be valuable in helping merging parties and the antitrust bar appreciate that the Agencies evaluate the competitive impact of a proposed transaction on a case-by-case basis using empirical data and analyses rather than market shares and concentration.

IV. CONCLUSIONS

As stated in Section 0.1 of the Merger Guidelines, the Merger Guidelines outline the merger enforcement policy of the DOJ and FTC. The Merger Guidelines were also written to articulate the Agencies' analytical framework and to "set forth a methodology for analyzing issues once the necessary facts are available."¹⁷ Revisions to the Merger Guidelines could provide greater clarity (i) on the types of evidence and screens that are used in the first stage of a merger investigation, and (ii) regarding the types of empirical evidence and analyses that the Agencies rely upon to determine the likely competitive effects of a proposed transaction. Revisions in these two areas would enable the Merger Guidelines to provide better information and guidance to merging parties and their counsel as they would better reflect the actual practice and analytical process that the Agencies employ in evaluating the potential competitive impact of a proposed merger.

¹⁶ Although an increase in output is not necessary and sufficient for a consumer surplus increase, the output test nevertheless is a useful test for competitive effects because it is often easier to apply than a consumer surplus test and often provides the same answer as the consumer surplus test. See Frank H. Easterbrook, *The Limits of Antitrust*, TEXAS LAW REVIEW (1984).

¹⁷ Merger Guidelines, Section 0.1.



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Should New Merger Guidelines Give UPP Market Definition?

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I. INTRODUCTION

In an important recent paper,² Joseph Farrell and Carl Shapiro (hereafter “FS”) propose a new quantitative approach to assessing the competitive impact of horizontal mergers that does not involve defining a relevant market. I believe that FS have made a significant contribution that has the potential to improve merger enforcement. In what follows I describe their approach, propose a slight modification, and note that, like any purely quantitative technique, it must be used with care and common sense.

Like most economists, I agree with FS that market definition is often problematic, particularly when products are differentiated, and that the traditional market definition approach is often not the best way to assess competitive impact. Market definition involves the implicit assumption that for any given set of products a boundary can be drawn in geographic and product space including those products and, possibly, others such that all products within the boundary compete directly with each other but do not compete to any important extent with any product outside the boundary. Even when products are homogeneous, geographic markets that come close to satisfying this assumption are sometimes hard to identify. When products are differentiated, however, as they commonly are in modern economies, it is often painfully clear that nothing like such a sharp boundary exists: *ReaLemon* and *Whole Foods* are two among many possible examples.³ Even though in such cases most economists would place more weight on methods of assessing the competitive impact of mergers that do not rely on market definition, courts generally view market definition as an essential component of the case.

II. THE FS PROPOSAL

FS propose using a particular measure of upward pricing pressure (“UPP”), to assess competitive impact instead of (or, perhaps, in addition to) the traditional market definition approach. They present several versions of UPP; I focus here on the simplest.

Suppose competing single-product firms 1 and 2 propose to merge and become divisions 1 and 2 of the merged firm. It is reasonable to assume that each firm’s pre-merger price maximizes its profits, which I label Π_1 and Π_2 , respectively. I will also use these labels to denote the profits of divisions 1 and 2, respectively, of the merged firm.

¹ This paper is descended from a talk given at the LECG Newport Summit, October 3, 2009. I am indebted to Summit participants for a useful discussion and to David Evans and Glen Weyl for comments on an earlier version of this paper that led to substantial revisions.

² Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, University of California, Berkeley, November 28, 2008.

³ See Richard Schmalensee, *On the Use of Economic Models in Antitrust: The ReaLemon Case*, U. PA. L. REV., 127 (April 1979): 994-1050, and *Federal Trade Commission v. Whole Foods Mkt. Inc.*, Court of Appeals for the D.C. Circuit, Case 07-5276, Decided 29 July 2008.

FS consider how the merger would change pricing incentives, starting at pre-merger prices. Suppose that the first thing that happens after the merger is that division 1 raises its price, P_1 , just enough to lower its output by one (very small) unit. By the assumption that P_1 maximized firm 1's profits, this tiny change will have a negligible impact on Π_1 . But it will raise the merged firm's profit by increasing the sales and profits of division 2. Using division 2's pre-merger marginal cost, the increase is

$$(1) \quad \Delta\Pi_2 = D_{12}[P_2 - C_2],$$

where P_2 and C_2 are division 2's (pre-merger) price and marginal cost, and $D_{12} < 1$ is a diversion ratio, the fraction of division 1's lost sales that would go to division 2.

On the other hand, if increased efficiency reduces C_1 to $(1 - E_1)C_1$ post-merger, with $0 < E_1 < 1$, division 1's profit-maximizing price is also reduced, and the hypothesized small price increase would actually lower its profits. A little calculus gives the impact as

$$(2) \quad \Delta\Pi_1 = -E_1C_1.$$

Combining these two effects gives the FS measure of upward pricing pressure for division 1. Holding everything else constant, it is profitable for the merged firm to instruct division 1 to increase its price by (at least) a small amount if

$$(3) \quad \Delta\Pi_1 + \Delta\Pi_2 = D_{12}[P_2 - C_2] - E_1C_1 \equiv UPP_1 > 0.$$

It does not seem logically consistent, however, to take into account the fall in division 1's marginal cost in (2) but to ignore the change in division 2's marginal cost in (1).⁴ Considering the post-merger cost changes in both divisions yields an alternative measure of upward pricing pressure for division 1:

$$(4) \quad D_{12}[P_2 - (1 - E_2)C_2] - E_1C_1 \equiv UPP_1^* = UUP_1 + E_2D_{12}C_2$$

Clearly, if UPP_1 is positive, so is UPP_1^* . Intuitively, UPP_1^* is likely to be the more informative about the likely post-merger price increase, since it takes account of all post-merger cost changes. (I return to this point below.)

FS show that, under relatively weak assumptions, if both UPP_1 and UPP_2 (which is defined by (3) with 1's and 2's interchanged) are positive, the merged firm's profits are increased by raising both its prices.⁵ (I conjecture that a similar result can be proven for the UPP^* s, but I have not attempted to do so.) They propose that a merger be presumed anti-competitive and subjected to more intensive analysis if both these quantities are positive for some positive "default" value for the efficiency parameters E_1 and E_2 .

III. MEASURING MARGINAL COST

Any quantity like UPP or UPP^* (or, for that matter, Critical Loss) that depends heavily on marginal cost is difficult to measure precisely. It is not uncommon in practice to use average variable cost as an estimate of marginal cost, but that estimate is typically biased downward,

⁴ I am indebted to Glen Weyl for this point.

⁵ These assumptions are not completely innocuous, however. For an example in which this proposition does not hold, see E. Glen Weyl & Michal Fabinger, *Pass-Through as an Economic Tool*, working paper, pp.29-39 (October 29, 2009). Available at SSRN: <http://ssrn.com/abstract=1324426>.

particularly under competitive conditions.⁶ Even a perfectly competitive firm that sets price equal to marginal cost has to cover its fixed costs in long-run equilibrium, so that if

$$\text{price} = \text{marginal cost} = \text{average total cost} = \text{average fixed cost} + \text{average variable cost},$$

it must be that marginal cost exceeds average variable cost, with the difference equal to fixed cost per unit of output and thus, generally, varying directly with capital intensity. While it is possible in principle for firms facing relatively inelastic demand curves to be in equilibrium with marginal cost below average variable cost, this seems unlikely to be the typical case. This, of course, is “merely” a measurement problem, not a matter of principle, but I believe it is a more serious measurement problem than is often recognized.

IV. EFFICIENCY

For a merger with no efficiency gains, UPP and UPP* are always positive. Rather than use case-specific estimates of price-reducing efficiencies (i.e., reductions in marginal costs), FS propose simply to assume and employ a single, default value for all cases. While I recognize that efficiencies are difficult to estimate in practice, it is hard to see the merit in deciding in advance to ignore any relevant case-specific information that might be present – whether one is using UPP or UPP* as a diagnostic tool or employing the traditional Guidelines market definition approach. It would seem to be preferable to begin with a default value for efficiencies but to depart from it if the merging parties can convincingly argue that they will do better or if they fail to make a credible showing that there will be any significant efficiencies at all.

V. POST-MERGER PRICE CHANGES

Merger enforcement has generally been focused on preventing mergers that would produce a significant (and non-transitory) price increase, but UPP (and UPP*) directly measures only the profitability of a tiny increase from pre-merger prices. It does not indicate whether the merger would produce more than a tiny price increase. Imagine starting to walk up a hill in fog so dense that you can only see a few feet ahead. The steepness of the path at the bottom of the hill is like UPP. Just as the steepness of the path at the bottom doesn't tell you how high the hill is, so the magnitude of UPP doesn't tell you how large the post-merger price increase would be.

In their Section 3, FS show that if one knows the UPPs and the shapes of the relevant net demand curves (net of competitive reactions, that is), one could use the UPPs to produce estimates of the post-merger price increase and thus concentrate enforcement resources on mergers likely to produce substantial price increases. They provide formulae for doing this that depend on pass-through rates; the rates at which cost increases are passed through to higher prices.⁷ But because pass-through rates depend on curvatures of demand curves (not just their slopes or elasticities) and competitive interactions and are hard to estimate in practice, FS seem reluctant to use these price change estimates.⁸

⁶ For a clear recent discussion of this point, see Russell Pittman, *Who Are You Calling Irrational? Marginal Costs and the Pricing Practices of Firms*, Discussion Paper EAG 09-3, Antitrust Division, US Department of Justice, June 2009.

⁷ For a comprehensive treatment of pass-through rates and their uses in economic analysis, see Weyl & Fabinger, *supra* note 5.

⁸ For an instructive examination of this point and a demonstration that pass-through assumptions can have dramatic effects on predicted post-merger price changes, see Luke Froeb, Steven Tschantz, & Gregory J. Werden, *Pass-Through Rates and the Price Effects of Mergers*, INT'L J. OF INDUS. ORG., 23, 703-15, (December 2005).

Since price increases are the focus of concern in merger enforcement, however, it seems better to make decisions about where to concentrate enforcement resources on estimates of post-merger price changes, even if one has to make additional assumptions to obtain them, than estimates of upward pricing pressure, a quantity unrelated to any measure of consumer harm. The tools that FS have developed enable one to obtain plausible estimates of post-merger price changes using only the information necessary to compute UPP or UPP*.

Consider a simple blackboard example. Firms 1 and 2 both have constant marginal cost equal to C and face symmetric demand curves:

$$(5) \quad Q_i = \alpha - \beta P_i + \gamma P_j; i, j = 1, 2, i \neq j, 0 < \gamma < \beta,$$

where the Q 's are quantities demanded. For these demand curves both diversion ratios are equal to $D = \gamma/\beta$, and both pre- and post-merger equilibria are symmetric. Under these assumptions and the assumption that the impacts of other firms' price changes triggered by the merger on the demands of the merging firm are small enough to be ignored, it is straightforward to compute the pre- and post-merger prices and thus the actual percentage price change:

$$(6) \quad \Delta P/P = UPP^*/[2P(1 - D)] = [DM - E(1 - D)(1 - M)]/[2(1 - D)] \equiv PCAL,$$

where $M = (P - C)/P$ is the (common) pre-merger percentage markup over marginal cost, and PCAL is short for Price Change Assuming Linearity. PCAL is increasing in M and D and decreasing in E , as one would expect. In this example, the information needed to compute UPP* is sufficient to compute the post-merger price change exactly. If the two firms have different values of price, marginal cost, E , and the demand parameters in (5), the situation is more complex algebraically, but not conceptually: the information necessary to compute UPP_1^* and UPP_2^* is sufficient to compute the post-merger price change exactly if demand is linear.⁹

Equation (6) shows that in this example UPP* provides a more natural vehicle than UPP for analysis of post-merger price change.¹⁰ But it also shows that UPP* by itself is not a good predictor: Under demand linearity two mergers with the same value of UPP* but very different diversion ratios would produce very different post-merger price changes. Since post-merger price changes are what matter, if we knew that demands were linear it would seem clearly better to employ an estimate like PCAL as a screening device rather than any estimate of upward pricing pressure.

There is no reason to believe that demand curves are generally linear, of course, and thus no basis for asserting that estimates like PCAL are likely to be particularly accurate in most cases.¹¹ But that's not what matters in merger enforcement. In that context, what matters is

⁹ If one has estimates of pre-merger prices, quantities, marginal costs, efficiencies, and diversion ratios, all of which are necessary to compute UPP or UPP*, one can write down six equations in the six unknown demand parameters: two demand equations (5) linking actual prices with actual quantities, two diversion rate equations $D_{ij} = \gamma_j/\beta_i$, and two first-order conditions for the optimality of pre-merger pricing. Solving for estimates of the six demand parameters and using the other estimates, one can directly compute estimates of the post-merger price changes. There are undoubtedly more efficient ways of doing this, but developing them would take me far beyond the bounds of this paper.

¹⁰ The estimate of post-merger price change that FS propose in their equation (6) becomes $2UPP/(4 - D^2)$, using the pre-merger firm-specific pass-through rate under demand linearity, which will almost always underestimate the actual price change under linearity.

¹¹ See Froeb et al, *supra* note 8 for a discussion of merger simulation techniques of this sort.

whether such estimates would do a better job than quantities like UPP of alerting enforcement authorities to those mergers most likely to have significant anticompetitive effects. If all demands were linear, the answer would be clear. Even if though they were (probably) not, I would argue that ranking mergers by estimated post-merger price increase seems more likely to generate an appropriate enforcement agenda than ranking them by a better estimate of a less directly relevant quantity like upward pricing pressure.¹² On the other hand, if formulaic simplicity is of paramount importance, one might choose to employ a measure like UPP or UPP* despite its indirect relation to consumer welfare.

In the presence of differentiation, it is important not to avoid rigid, formulaic use of any quantitative screening device. Consider, for instance, an intersection of two busy roads at which there are only two gasoline stations, and suppose there are stations fairly densely situated along both intersecting roads and elsewhere in the surrounding large urban area. The two stations in the intersection propose to merge. While one might be able to ignore product differentiation here, geographic market definition would be problematic. Taking the whole of the large urban area as a market would surely understate the impact of any merger that involved stations in only part of the area, while any smaller market could be (validly) attacked for omitting close competitors of firms within the alleged market. A two-station, one-intersection market would be laughed out of court—and properly, I would think.

Now consider formulaic use of UPP, UPP*, or PCAL. The best available measure of marginal cost is almost certain to be the wholesale price of gasoline, and both stations will set their prices above that measure in order to cover their fixed costs. Since each of these stations is the other's closest competitor, both diversion ratios are likely to be substantial. The merger may reduce fixed costs of various sorts, but it is unlikely to lower the wholesale price of gasoline. Thus, unless the analysis involves a default efficiency parameter with an unjustifiably large value, both UPPs and UPP*s are likely to be substantial, along with post-merger price change estimates like PCAL. But most economists would expect competition from stations not in the intersection to make anything beyond tiny post-merger price increases unsustainable. Support for this sort of expectation, based on other information about the marketplace, should be sufficient to rebut predictions based on formulaic analysis of upward pricing pressure or estimates of post-merger price increases that rest on unverified assumptions about demand functions.

VI. CONCLUSIONS

As I stated at the outset, I believe Farrell and Shapiro have made a significant contribution to the economic analysis of mergers that has the potential to improve merger enforcement. Most economists agree with them that the traditional market definition approach is often not the best available method to assess competitive impact, particularly in markets with differentiated products, and most of us hope that courts will come to recognize that whatever Congress meant by “in any line of commerce or in any activity affecting commerce in any section of the country,” they did not mean “in a well-defined antitrust market.” I have argued here that the FS approach can be improved by modifying it slightly to handle post-merger cost

¹² The main advantages of the assumption of linearity are tractability and familiarity. If some other functional form with a priori reasonable properties proves to be more tractable, it could be used instead to estimate post-merger price changes. Or one could employ several different functional forms, choosing among them only if the choice substantially affected enforcement priorities.



changes consistently and to focus directly on post-merger price changes and that it should be used carefully and with due regard for other relevant evidence.



Critical Loss vs. Diversion Analysis: Clearing up the Confusion

Malcolm B. Coate & Joseph J. Simons

Federal Trade Commission & Paul, Weiss

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I. INTRODUCTION

Critical Loss Analysis has been a standard method of implementation for the market definition algorithm of the Department of Justice (“DOJ”) and Federal Trade Commission (“FTC”) Horizontal Merger Guidelines (“Guidelines”).² A few years ago, it was recognized as one of the major developments of the modern Merger Guidelines era.³ At the same time, however, there has been a lively debate about the pros and cons of the standard Critical Loss Analysis (“CLA”) methodology. An alternative methodology has been proposed by the current chief economists at both the FTC and the DOJ.⁴ With the recent announcement by the agencies of their intent to amend the Guidelines, this debate takes on some urgency.

A few years after the issuance of the 1982 Merger Guidelines, CLA was introduced as an empirical structure to define relevant markets, as well as a method to aid in the full competitive effects analysis.⁵ Recently, however, various commentators have suggested problems with CLA ranging from fairly minor issues⁶ to claims that the approach is not consistent with basic economic theory.⁷ Not surprisingly, there is considerable confusion in the antitrust community regarding the appropriate use of CLA and its potential alternatives. This article attempts to bring some clarity to this situation.

There are multiple sources for this confusion. We identify four. Once these sources of confusion are understood, the only real area of disagreement relates how to measure the

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² Department of Justice and Federal Trade Commission Horizontal Merger Guidelines (Issued April 1992/Revised April 1997) at § 1. For an overview on the Guidelines market definition test, see Gregory J. Werden, *The 1982 Merger Guidelines and the Ascent of the Hypothetical Monopolist Paradigm*, 71 ANTITRUST L. J. 253 (2003).

³ David Scheffman, Malcolm Coate, & Louis Silvia, *Twenty Years of Merger Guidelines Enforcement at the FTC: An Economic Perspective*, 71 ANTITRUST L. J. 277, 285 (2003).

⁴ Joseph Farrell & Carl Shapiro, *Improving Critical Loss*, ANTITRUST SOURCE, Feb. 2008, <http://www.abanet.org/antitrust/at-source/08/02/Feb08-Farrell-Shapiro.pdf>.

⁵ Barry C. Harris & Joseph J. Simons, *Focusing Market Definition: How Much Substitution is Enough*, 12 RES. L. & ECON. 207 (1989). This model has been generalized for increasing marginal cost conditions in Malcolm B. Coate & Mark Williams, *Generalized Critical Loss for Market Definition*, 22 RES. L. & ECON. 41 (2007). Moreover, background on the critical loss debate can be found in Malcolm B. Coate & Mark Williams, *A Critical Commentary on the Critical Comments on Critical Loss*, 53 ANTITRUST BULL. 987 (2008). This paper builds on the Harris and Simons’ observation that a general critical loss methodology can also be used for the overall competitive effects analysis.

⁶ Michael G. Baumann & Paul E Godek, *Reconciling the Opposing Views of Critical Elasticity*, GCP MAGAZINE September 2009 (2) for the basic presentation and Michael G. Baumann & Paul E Godek, *Could and Would Understood: Critical Elasticities and the Merger Guidelines*, 40 ANTITRUST BULL. 885 (1995) for details on the elasticities.

⁷ Daniel O’Brien & Abraham Wickelgren, *A Critical Analysis of Critical Loss Analysis*, 71 ANTITRUST L. J. 161 (2003).

demand responses to a Guidelines' hypothetical price increase when defining relevant markets. CLA, applied properly, turns out not to be the issue.

The first source of confusion involves some ambiguity over what the Critical Loss is and the appropriate way to do a Critical Loss Analysis. Critical Loss is merely an estimate of the amount of sales volume a hypothetical monopolist must lose to make a hypothetical small but significant and non-transitory price increase ("SSNIP") unprofitable. It is the first step in Critical Loss Analysis and is based on margin data and nothing else. It does not assume any type of demand curve or economic model. Other than the fact that it involves an estimation of the margin, it is pure arithmetic—algebra to be precise.⁸ Critical Loss Analysis includes a further step, which is to estimate whether the predicted actual loss in volume from the hypothetical price increase (the Actual Loss) will exceed the Critical Loss and thus require expansion of the candidate market under the Merger Guidelines test. This further step does, of course, involve some serious economic analysis, and turns out to be the source of the real conflict. While economists can advance other methodologies, Critical Loss Analysis is a simple break-even concept used to define relevant markets.⁹

Second, the scope of the SSNIP is another source of confusion. The common application of the Merger Guidelines test for market definition hypothesizes an across-the-board SSNIP for all products in the candidate market. Various proposals have been made to use: (1) a price increase on only one of the products in the market (single-firm SSNIP) or (2) different price increases for different products in the market, which we term a variable SSNIP.¹⁰ Obviously, calculating Critical Loss for different price increases would require different formulas, and this could easily generate different market definitions. It is important to make sure that the SSNIPs being compared are of the same type when trying to compare the results of two Critical Loss Analyses. And given the very serious disagreement over the appropriateness of using any type of single-firm or variable SSNIP in market definition, their widespread use is problematic. We discuss problems with the use of single-firm and variable SSNIP concepts in market definition in the Appendix.

Third, there is confusion over the role of Critical Loss when diversion ratios are introduced into the analysis. In effect, calculating a critical diversion ratio, as Farrell and Shapiro propose,¹¹ is merely a variant of calculating a Critical Loss. Rather than ask how much volume the hypothetical monopolist must lose to make the price increase unprofitable, the critical diversion approach asks how much volume must be kept by the firms in the market to make the price increase profitable. This is effectively identical to estimating Actual Loss under the Farrell & Shapiro structure.¹² Whether looked at from the point of view of loss or diversion,

⁸ Adriaan Ten Kate & Gunnar Niels, *The Concept of Critical Loss for a Group of Differentiated Products*, J. COMPETITION L. & ECON. (2009) at 4, available: doi:10.1093/joclec/nhp015. This is not to say that determining the margin is a trivial exercise.

⁹ We will leave it to others to discuss what the Guidelines meant by the term "likely would impose" in relationship to a SSNIP. Our position is clear: For roughly 20 years, merger analysts have applied the standard CLA to define markets with a break-even analysis.

¹⁰ Oystein Daljord, Lars Sorgard, & Oyvind Thomassen, *The SSNIP Test and Market Definition with the Aggregate Diversion Ratio: A Reply to Katz and Shapiro*, 4 J. COMPETITION L. & ECON. 263 (2008) and Janusz Ordover & Robert D. Willig, *Economics and the 1992 Merger Guidelines: A Brief Survey*, 8 REV. INDUS. ORG 139 (1993).

¹¹ Farrell & Shapiro, *supra* note 4 at 5.

¹² Breakeven diversion defines the percentage of the sales lost by incumbent firms in response to a SSNIP that must be recovered by (diverted to) incumbent firms such that the SSNIP will breakeven with respect to profits earned

the question is essentially the same. In the literature, the diversion analysis may look different, because it is frequently discussed with assumptions regarding demand estimates baked into the calculation. We see no reason to explore this issue in greater depth.

Fourth, and most importantly, the disagreement is very real and highly significant with respect to how to compute the likely demand response to the SSNIP (the Actual Loss). Katz and Shapiro and, more recently, Farrell and Shapiro, propose an approach (the “FKS approach”) based on the general applicability of: (1) the Lerner Condition, and (2) a specific method for aggregating the results from the firm level to the market level.¹³ Given these two assumptions, they advocate a theoretic approach that emphasizes “premerger margins” to derive (rather than measure directly through empirical analysis) the predicted demand response to a price increase by a hypothetical monopolist under the Merger Guidelines test for market definition. Farrell and Shapiro suggest that empirical analysis of demand could rebut this theoretic “evidence,” but one is left with the impression that they would impose a high burden of proof in this regard such that the theoretic evidence would almost always prevail.

As we explain below, the FKS approach has serious drawbacks, and this is the focus of our paper.¹⁴ First, the methodology is designed to almost guarantee narrow markets, even in low-to-moderate margin industries. Courts are unlikely to get comfortable with this result, because it appears to shift the burden of proof on market definition away from the plaintiff.¹⁵ Second, the FKS approach models firm level outcomes, while market definition under the Merger Guidelines and Critical Loss methodology focuses on market level outcomes. Thus, the FKS approach must aggregate firm effects together to obtain a market effect, but it does so through the use of restrictive assumptions that may lack empirical basis.¹⁶ Without these

by the incumbent firms. Mathematically, $(1-D) S/M = S/(S+M)$ where, D is the break-even diversion, S/M is the elasticity of demand defined as the ratio of the SSNIP (S) to the Margin (M) via the Lerner index and $S/(S+M)$ is the critical loss for a linear demand curve. Re-arranging terms shows $(1-D) = M/(M+S)$ and then $D = S/(M+S)$, so in percentage terms, the break-even diversion equals the breakeven critical loss for a linear demand curve.

¹³ Michael Katz & Carl Shapiro, *Critical Loss Let's Tell the Whole Story*, 17 ANTITRUST L.J. 49 (2003) and Farrell & Shapiro, *supra* note 4. For a round of response-rejoinder, see David T. Scheffman & Joseph J. Simons, *The State of Critical Loss Analysis: Let's Make Sure We Understand the Whole Story*, ANTITRUST SOURCE, Nov. 2003, <http://www.abanet.org/antitrust/at-source/03/11/scheffman.pdf>, Michael L. Katz & Carl Shapiro, *Further Thoughts on Critical Loss Analysis*, ANTITRUST SOURCE, Mar. 2004, <http://www.abanet.org/antitrust/at-source/04/03/katzshapiro.pdf>; and Daniel P. O'Brien & Abraham L. Wickelgren, *The State of Critical Loss Analysis: Reply*, ANTITRUST SOURCE, Mar. 2004, <http://www.abanet.org/antitrust/at-source/04/03/obrienwickel.pdf>.

¹⁴ In a companion paper, Coate and Simons discuss a number of situations in which the price-based model of product differentiation is not applicable. In effect, the conclusions of the two papers are the same; the theorists' approach to Critical Loss Analysis represents a special case generalization of the standard technique. See Malcolm B. Coate & Joseph J. Simons, *Critical Loss: Modeling and Application Issues*. (2009). Available at <http://ssrn.com/abstract=1520069>.

¹⁵ In *Swedish Match*, the FKS approach was rejected by the court, but the views of the competitors and distributors, along with the internal documents, were considered sufficient to support a narrow market of loose-leaf smokeless tobacco. Here, the court felt the loose-leaf business would not lose more than the critical level of sales in response to an across the boards SSNIP. See, *FTC v. Swedish Match* 131 F. Supp 2d 151 (D.D.C. 2000). Broader markets were sustained in the face of close head-to-head competition from the merger partner in *Gillette and Russell Stover*. See, *U. S. v. Gillette* 828 F. Supp. 78 (D.D.C. 1993) and *Pennsylvania v. Russell Stover Candies*, 1993-1 Trade Cas. 70,224 (E.D. Pa. 1993).

¹⁶ Although almost standard procedure for game theoretic economists, this type of analysis substitutes deductive logic for empirical evidence. Under the Daubert standard, experts are limited to fact-based analysis. See, Malcolm B. Coate & Jeffrey H. Fischer, *Daubert, Science and Modern Game Theory: Implications for Merger Analysis*, 2009, forthcoming in SUP. CT. ECON. REV. Draft available at <http://ssrn.com/abstract=1268386>.

restrictive assumptions, almost any result can obtain, depending on the facts.¹⁷ Third, use of the Lerner Condition to measure elasticities depends critically on the accurate measurement of marginal cost. This may prove impossible, thus precluding the FKS approach. Even if a point estimate of marginal cost is available, it would be a mistake to conclude that marginal cost equals the estimate of incremental cost needed for a Critical Loss Analysis. We conclude that any form of Critical Loss Analysis requires factual evidence.

II. THE LERNER INDEX, AND DIVERSIONS, VIRTUALLY GUARANTEE NARROW MARKETS

The Lerner Index exploits the basics of profit maximization to link the firm's own elasticity of demand with the relevant marginal cost condition facing the firm at the optimal level of output. Assuming applicability of the Lerner Index, the economic theorists recognize that if you know marginal cost, you know the own elasticity, and visa-versa. This proposition (coupled with the concept of diversion) underpins the theorists' criticism of the standard application of CLA.

It is well known in economics, however, that virtually all unilateral effects models utilizing the Lerner Condition produce price increases for any horizontal merger. That is, every horizontal merger is predicted to raise price, which of course has no empirical support and would face serious Daubert issues if used in court.¹⁸ Because the FKS approach uses the same underlying assumption (i.e. the Lerner Condition), it produces narrow markets even for low-margin industries. Thus, even though there are serious issues with the use of the Lerner Condition, we continue our discussion assuming its validity.

To understand the basic impact of the Farrell-Katz-Shapiro analysis, it is helpful to reconstruct the basic math to see how the methodology exploits the optimization relationship that underlies the standard Lerner Index to highlight how even small amounts of diversion to products within the purported market are sufficient to turn broader markets into narrow ones. Table 1 presents the aggregate Critical Loss calculations associated with evaluating the profitability of a standard SSNIP in a differentiated product market.

The first column lists the margin, which is allowed to range from a high of ninety percent (.90) to a low of ten percent (.10). Column 2 is the linear demand, break-even Critical Loss for a 5 percent SSNIP corresponding to the margins in Column 1.¹⁹ The next column simply converts Critical Loss into Critical Elasticity by dividing the Critical Loss by the five percent SSNIP.

Assuming the Lerner Condition applies, Column 4 computes the demand elasticity for the hypothetical monopolist (i.e. the candidate market demand elasticity) as the inverse of the margin. Although this demand elasticity estimate based on the Lerner Condition is technically defined for an individual firm, it can also be used as the maximum demand elasticity facing a

¹⁷ The Lerner analysis, coupled with the firm-level diversions implicit in the aggregate diversion analysis, implies every horizontal merger generates price increases, and absent special circumstances or offsetting reductions in marginal cost, could be prima facie illegal. There is simply no empirical support for this modeling structure, and its predictions must be considered unconfirmed.

¹⁸ Coate & Fischer, *supra* note 16.

¹⁹ For the calculation with differentiated products, see, Ten Kate & Niels, *supra* note 8 at equation 3.

larger group of firms (i.e. the maximum market demand elasticity).²⁰ This maximum market demand elasticity is then used to estimate the predicted maximum Actual Loss associated with an across-the-board five percent price increase assuming a linear demand curve, which appears in column 5.

The sixth column presents the ratio of the Critical Loss to predicted Actual Loss. This fraction defines the percentage of the hypothetical monopolist's predicted Actual Loss that must be lost to products outside the candidate market (i.e., not diverted among products within the candidate market) for the relevant SSNIP to be break-even. For example, if the margin is 60 percent, the hypothetical monopolist must lose more than 92.31 percent of its foregone sales to entities outside the proposed market for the narrow market to be rejected.²¹

Table 1 - Critical Loss vs. Predicted Actual Loss (for a five percent SSNIP)

Margin	Critical Loss (%)	Implicit elasticity	Est. Elasticity	Predicted Loss (%)	Critical/Predicted
0.9000	5.2632	1.0526	1.1111	5.5556	.9474
0.8000	5.8824	1.1765	1.2500	6.2500	.9412
0.7000	6.6667	1.3333	1.4286	7.1429	.9333
0.6000	7.6923	1.5385	1.6667	8.3333	.9231
0.5000	9.0909	1.8182	2.0000	10.0000	.9091
0.4000	11.1111	2.2222	2.5000	12.5000	.8889
0.3000	14.2857	2.8571	3.3333	16.6667	.8572
0.2000	20.0000	4.0000	5.0000	25.0000	.8000
0.1000	33.3333	6.6667	10.0000	50.0000	.6667

Farrell and Shapiro parameterize the sales diverted to other firms in the proposed market by the Aggregate Diversion Ratio, which they denote as "A." The sixth column in Table 1 is equal to 1-A. Whether expressed as A or 1-A, the basic point Farrell and Shapiro try to make is that when margins are moderate to high, only a very small share of the lost sales must

²⁰ The market elasticity must equal or exceed (be less elastic than) the firm-level elasticity, because a firm's departing customers may switch to other products in the market, while industry customers searching for alternative products must switch to suppliers outside the market. Obviously, the concept also requires the analyst to be able to define a composite good to aggregate the differentiated products together.

²¹ This calculation matches the results in O'Brien & Wickelgren's Table 1 for a five percent SSNIP (the 7.69 percent recovery by firms within the market is the same as a 92.31 percent loss to firms outside the market, O'Brien & Wickelgren, *supra* note 7, at 174). Because the Lerner index assumes profit maximization, the predicted Loss from a pure Lerner Index model must be more than the Critical Loss.

be diverted to other firms in (or a very large share of the lost sales must be diverted to other firms outside) the candidate to confirm (reject) a candidate market.

Farrell and Shapiro summarize their result as follows:

Proposition 1: If each firm owns a single product and prices to maximize its profits and if demand is linear in price for small price changes starting from the premerger price, then a symmetric group of products forms a market under break-even analysis if:

$$A \geq S / (M+S) \text{ (where } S \text{ is the SSNIP and } M \text{ the margin.)}^{22}$$

According to Farrell and Shapiro, Proposition 1 means that the standard Merger Guidelines implementation of the SSNIP will generally lead to narrow markets for high-margin industries. Essentially, the diversion must be larger than the Critical Loss, which ranges from 5 percent to 33 percent (for margins ranging from 10 to 90 percent) for a 5 percent SSNIP.²³ Looking at these diversion numbers (5-33 percent), one might think superficially that they are very low thresholds that would generally result in narrow markets even in low-margin industries.

This proposition, however, only results in narrow markets if there will be sufficient diversion in the face of an across-the-board price increase by *all of the firms in the market*. But why would customers divert volume among firms that are raising prices jointly, as opposed to diverting volume to firms that are not raising price? For example, if Mercedes, BMW, and Audi all raise prices simultaneously by the same amount, why would we expect any Mercedes customers to switch to BMW or Audi? We think that generally the Mercedes customers would not but, at a minimum, it is an empirical issue. If the answer is that we do not expect such switching, then the Farrell & Shapiro approach (with a linear demand curve) would result in expanding the candidate market for across the board SSNIPs because A would be very close to zero and thus, will be less than $S/(M+S)$ in their Proposition 1. This result is the opposite of the one they seek to draw.

III. AGGREGATION NEEDS TO BE MODELED

The theorists attempt to deal with this problem using the following structure. Rather than start with an across the board SSNIP, they hypothesize a series of sequential price increases for the firms in the market. That is, they impose, firm by firm, the single-firm price increase, compute the firm-specific diversions, and then aggregate.²⁴ Following Farrell & Shapiro's example, let BMW raise its price by the SSNIP, while the other prices remained constant; then let Mercedes raise its price rise by the SSNIP, but let BMW's price remain at the higher level, while the prices of the other rivals remain fixed. The process repeats itself for Audi, as it sees the prices of all its competitors at the high level, and imposes its own SSNIP. As each price increases, some output would divert around, moving first to competitors with lower

²² Farrell & Shapiro, *supra* note 4 at 5. Technically, the break-even concept of the hypothetical monopolist means the firms in the market simply impose the SSNIP even if a lower price increase would be more profitable.

²³ Replace the linear with a "constant elasticity" demand curve, and the critical diversion falls to a range from .3 to 10.5 percent. O'Brien & Wickelgren, *supra* note 7, at 175.

²⁴ In the Katz & Shapiro paper (*supra* note 13, at 54), a sequential aggregation scheme is suggested, but the reader is cautioned, at footnote 31, that aggregation could cause the "aggregate diversion ratio" facing one firm to fall when the prices of the other firms in the market are increased. We are aware of no attempt to parameterize this effect.

prices and then possibly back to the original firm now selling at the high price or possibly out of the market entirely as the customers are unable to find any supplier in the candidate market holding the competitive price.

Using the linear demand structure, however, Farrell and Shapiro find that the diversion to other firms in the market caused by a single firm raising price is the same as when all firms in the market raise price at the same time. Thus, given their construct, Farrell and Shapiro predict the substantial diversion among firms in a market will not be lost to entities outside the market when all of those firms impose an across the board SSNIP. What Farrell and Shapiro appear to assume is that the product differentiation in the market leads to a relatively inelastic demand for the specific products in the hypothetical market, such that consumers are willing to pay the higher prices to retain access to the unique characteristics of the in-market products. When just one firm raises price, customers divert to close rivals, but when the across-the-boards SSNIP is imposed, customers remain with an in-market supplier. Obviously, this could happen, but it is an empirical question.

We suggest that this modeling structure often obscures the reality faced by customers in responding to a series of price increases (or the analogous simultaneous market-wide SSNIP). Firm level Diversion, A , is estimated based on the assumption that only the price of the firm's own product changes.²⁵ All other prices remain the same. However, in the sequential analysis discussed above, all prices eventually change. For example, take the situation faced by the customers of BMW that choose to divert to Mercedes and Audi to obtain a substitute product at a lower relative price. At the end of the sequential analysis, these customers find all the prices are higher. In effect, they have three choices: return to their original supplier; remain with their alternative supplier; or leave the narrow market. Farrell and Shapiro exclude this last alternative by their choice of mathematical structure. Customers are simply denied the option of switching to Japanese luxury cars when the prices of all German luxury cars increase together. This limitation may have significant effects.²⁶

To account for all three potential customer responses, we suggest that an Aggregate Retention Rate (R) is needed to define the percentage of the sales "initially" diverted from each firm to its rivals within the market in response to a single-firm SSNIP that is retained by firms within the market when all the rivals raise price by the SSNIP. The modeling assumptions imposed by Farrell and Shapiro are equivalent to setting $R = 1$ and thus all sales initially lost to an in-market competitor by any entity in response to the first stage SSNIP analysis end up as retained by the firms within the proposed market. An alternative structure would set $R = 0$ and assume that the marginal customers would switch to out-of-market suppliers when all the firms in the market raise price by the SSNIP.

²⁵ Farrell and Shapiro report "that A is calculated on the assumption that the price of one product changes and the other prices do not." Farrell & Shapiro, *supra* note 4 at 6.

²⁶ While Farrell and Shapiro explicitly assume linearity to obtain their result, all they really need is a first-order Taylor's series expansion for the relevant demand system. Exclude the higher-order derivatives and their result obtains. However, real world systems of demand equations can not always be accurately linearized and, thus, empirical evidence suggesting substantial switching in a high margin market is easy to reconcile with optimization models of economics. All that is needed is a set of second (and higher order) derivative effects to "offset" part (or even all) of the first order Farrell & Shapiro diversion result. In effect, the "diverted" customer, seeing the prices for all differentiated products rise by a SSNIP, may find some alternative outside the market.

More complicated modeling structures could impose any value on R between 0 and 1, but the fact remains that the modeling structure would assume the value of the key parameter.²⁷ Theoretical Lerner Index analysis, parameterized with market data for linear equations, cannot conclusively define the predicted Actual Loss, because the value of the Retention Rate parameter is an empirical question. Natural experiments could generate an implicit estimate of the retention parameter by combining Lerner analysis with a direct measure of the predicted Actual Loss for the proposed market to back out the Retention Rate. However, the predicted Actual Loss is sufficient to complete the Critical Loss arithmetic; thus making the estimation of the more complex modeling structure redundant.

IV. AN EXAMPLE OF DIVERSION ANALYSIS WITH A RETENTION PARAMETER

We use a simple example to illustrate the market-narrowing potential of the FKS approach. Assume that there are nine equally-sized firms each selling a separate differentiated product, along with one composite actor representing the other alternatives, such that volume diverts equally among them (eight firms and outside choice) for any firm-specific unilateral price increase. Each firm takes one-ninth (11.1 percent) of the volume lost by the firm raising price by the five percent SSNIP.²⁸

To demonstrate the impact of the differences among the market definition concepts, we first model the analysis with a very low margin of 10 percent and assume that half of the sales diverted to competitors return to the firm raising price if the rival that obtained diverted sales also raises price, and that the other half are diverted to firms outside the proposed market (*i.e.*, the Retention Rate is 50 percent).

Going back to Table 1 momentarily, recall that it shows the Critical Loss for a ten percent margin is 33 percent. Thus, if the modeling exercise shows an actual loss above 33 percent, the collection of firms does not comprise a relevant market. Likewise, Table 1 estimates the Actual Loss under the Lerner Index model as 50 percent. Under the Farrell & Shapiro analysis, this implies (as per Proposition 1) that a narrow market survives if 33 percent (or more) of this 50 percent loss in sales is diverted to firms within the market boundaries. Our more complex analysis requires a more detailed review of these “diverted sales” to be sure that they are retained by a firm within the market in response to the market-wide SSNIP. Overall, we show that market definition turns on the interaction of the Diversion Ratio and the Retention Rate.

Table 2 illustrates these calculations. The first column shows the number of firms in the candidate market. The second column computes the Aggregate Diversion Ratio to other firms inside the candidate market, and the assumed Retention Rate is provided in the third column.

²⁷ The concept of a retention rate could be illustrated for a class of relatively homogeneous goods. First select M firms producing homogeneous goods for inclusion in a hypothetical market and N firms producing the same good for exclusion. When a single-firm SSNIP is imposed, some of the customers of the affected firm switch to the $M-1$ firms within the market and others to the N firms outside the market. For a market-wide SSNIP, virtually all customers of the M firms will switch to the N firms outside the market. Thus, while a firm-specific aggregate diversion index can be calculated, the Retention Rate is almost 0, leading to the conclusion little market-wide diversion will occur. If all $M+N$ firms are included in the market, the firm-level diversion rate will be large. The Retention Rate will probably be substantial, because all the $M+N$ firms are now in the market. Still, some of the diverted sales will leave the market in response to an across the boards SSNIP. The exact level of retention depends on the overall elasticity of demand and the firm-level diversion.

²⁸ The composite entity is referred to as a firm for brevity of explanation. In effect, “firms not in the market” can be read as “firms not in the market and the composite entity for outside alternatives.”

The fourth column provides the volume lost directly to firms outside the candidate market, which is the estimated Actual Loss (50 percent) multiplied by the share lost to firms NOT in the candidate market (*i.e.*, not diverted to firms in the proposed market). For a two firm candidate market, the direct loss multiplies the number of firms outside the market (eight) by the 11.1 percent lost to each firm and then by the overall sales loss (50 percent) to get .4445.

In addition, because firms 1 and 2 will both raise prices in the standard SSNIP, we need to calculate what we term as the indirect loss as well. Recall that we suggest that when firm 2 also raises price, the market will lose some of the sales retained after firm 1's price increase. We assume a Retention Rate of 50 percent so that the firms in the candidate market will be able to keep one-half of what was initially diverted to firm 2 when firm 2 follows firm 1 and raises price. Thus, for the two firm candidate market, we multiply the number of other firms inside the candidate market (*i.e.*, 1) by the 11.1 percent, then by the output lost (50 percent) and finally by the Retention Rate of 50 percent to compute .0278. The sixth column shows Total Loss, which simply sums the two Loss columns and defines the predicted Actual Loss.

Table 2 – Market Definition for Standard SSNIP with Diversion and Retention

Number of Firms	Diversion Ratio	Retention Rate	Direct Loss Outside	Indirect Loss	Total Loss
2	.1111	.5	.4445	.0278	.4723
3	.2222	.5	.3889	.0556	.4445
4	.3333	.5	.3333	.0833	.4166
5	.4444	.5	.2778	.1111	.3889
6	.5556	.5	.2222	.1389	.3611
7	.6667	.5	.1667	.1667	.3333
8	.7778	.5	.1111	.1944	.3055

CLA simply compares the level of Critical Loss (33.3 percent from Table 1 for a margin of .1) with the predicted Actual Loss. For the Farrell & Shapiro analysis, we read the resulting Actual Loss off the direct loss outside column (because Farrell and Shapiro implicitly set the Retention Ratio to 1) and find the market will include four rivals.

When accounting for the Retention Rate (.5 in this example), the final column (total loss) is controlling. Thus, if two firms raise price by the SSNIP, these entities will each lose 47.23 percent of their sales to entities outside the proposed market, a loss well above the Critical Loss and thus this market definition fails. The market is expanded by adding rivals until seven firms are in the market, since this seven-firm market just passes the Critical Loss test when the Retention Rate is considered. Thus, the market definition under the Farrell & Shapiro approach is almost half the size of a market defined with a 50 percent retention ratio (4 firms vs. 7 firms).

It is possible to undertake the same analysis for a range of values for the margin and Retention Rate. As shown in Table 3, decreases in the retention from 100 percent (the standard FSK assumption) to 10 percent (only 10 percent of the lost sales are diverted to rivals within the market remain with firms within the market in response to an across the boards SSNIP) broaden out the market towards the homogeneous goods baseline of 9 firms.²⁹ Likewise, lowering the margin from .9 to .1 also broadens out the market. While using the high margin of .9 generally suggests that markets must be narrow (2 or 3 firms), 6 firms will remain in the market if the retention parameter is set a 10 percent.

Table 3 – Number of Firms in Market by Retention Rates (for a five percent SSNIP)

Margin	Retention set to 100 percent	Retention set to 50 percent	Retention set to 25 percent	Retention set to 10 percent
0.9000	2 firms	2 firms	3 firms	6 firms
0.8000	2 firms	3 firms	4 firms	7 firms
0.7000	2 firms	3 firms	4 firms	7 firms
0.6000	2 firms	3 firms	4 firms	8 firms
0.5000	2 firms	3 firms	5 firms	9+ firms
0.4000	2 firms	3 firms	5 firms	9+ firms
0.3000	3 firms	4 firms	7 firms	9+ firms
0.2000	3 firms	5 firms	9 firms	9+ firms
0.1000	4 firms	7 firms	9+ firms	9+ firms

Two points emerge from Table 3. First, the use of the FKS approach (retention rate of 100 percent) generates narrow markets (with between 2 and 4 rivals) for all possible values of the margin (as defined in column 2). Thus, instead of just narrowing the market definition for high margin markets, the FKS approach narrows markets for all values of the margin parameter. Second, generalizing the FKS approach for the Retention Rate shows that anything can happen. Markets may remain broad for low margins and low Retention Rates or narrow dramatically for large margins and high Retention Rates (closer to the FKS assumption). Market definition must be considered an empirical question. Theory may raise interesting questions

²⁹ For very low values of the margin and retention parameter, the level of actual diversion to rivals within the market is too small to overcome the difference between the Critical Loss and the Lerner estimate of Actual Loss (both given in Table 1) for any market structure. In this case, the dynamics of competition implicit in this particular simulation model preclude the definition of any narrow market and more than 9 rivals (9+ firms) must compete in the market. It is important to remember that our model is designed only to illustrate the need to consider the effect of an across-the-boards SSNIP when undertaking merger analysis and not focus on the simulation result that seems to show differentiated products may result in broader markets than homogeneous goods.

and suggest needed lines of analysis (*i.e.*, is the product differentiated material?), but the Actual Loss from a SSNIP remains an empirical question.

V. MARGINAL COST AND DIVERSION ANALYSIS

The measure of the marginal cost that defines the Lerner index represents a final and often ignored problem with the entire FKS methodology.³⁰ In a theoretical analysis, the relevant marginal cost is the economic cost to produce the very last unit of output. In contrast, the appropriate cost under the standard CLA is the incremental cost associated with output lost to a SSNIP, an output that could vary from a few percent to 20 percent or more of the premerger output. As a result, there is no reason to assume that the average incremental cost will be the same—or even close—to the theoretical marginal cost. Thus, the determination of the elasticity of demand from an estimate of the incremental margin may easily generate a misleading result. Unless the analyst can measure the marginal cost at the market equilibrium, the elasticity of demand cannot be accurately estimated even assuming the applicability of the Lerner Condition. And even when the theoretical marginal cost can be measured, the Critical Loss analysis will need both the theoretical and incremental marginal cost variables to complete the analysis.

Thus, a more complete Critical Loss analysis would combine the adjustment for the Retention Rate (detailed in Table 3) with two estimates of the margin (a margin driven by the generally higher value of the theoretical marginal cost needed for the Lerner calculation and a margin defined by the generally lower incremental cost associated with the output lost to the SSNIP needed for the Critical Loss calculation). Use of a low margin in the Lerner analysis generates an initial estimate of a relatively large Actual Loss (from Table 1, a 20 percent margin leads to a predicted loss of 25 percent), but the diversion/retention analysis may reduce the Actual Loss substantially. This adjusted loss is the estimate of the predicted Actual Loss that is then compared to the breakeven Critical Loss benchmark computed using the higher margin (and tabulated in the second column in Table 1). Empirically, no strong conclusions can be drawn, because the differences in the two margin estimates, the diversion rate and the retention variable all interact in the revised Critical Loss Analysis calculation. Once the market conditions associated with the Critical Loss Analysis are fully considered, it is clear that market definition must remain an empirical process.

V. CONCLUSION

Other than a call for more careful analysis, it is hard to take much away from the Farrell, Katz, and Shapiro critique. They argue that their diversion parameter A is controlling, while never really explaining the strength of their results (virtually all markets are narrow) or the special case nature of their mathematical modeling. Moreover, their entire methodology collapses if the analyst is unable to estimate the theoretical marginal cost. Once more general demand structures are considered, it becomes clear that anything can happen. Thus, in differentiated

³⁰ Bauman & Godek, *supra* note 6 at 3. Their analysis is comparable to Coate & Williams (*supra* note 5) but focuses on profit maximizing price increases, instead of break-even price increases.

goods markets, critical loss remains an empirical issue and empirical evidence on actual loss is required to apply a critical loss test. Theory cannot trump fact.

VI. APPENDIX —THE VARIABLE SSNIP TEST AND CRITICAL LOSS

The 1992 Merger Guidelines introduced a variable SSNIP structure for market definition in which the hypothetical monopolist was required to: (1) raise the price of a product (product line) offered by one of the merged firms by the SSNIP, and (2) ensure that this price increase, when coupled with optimal price increases for the other products in the proposed market, was more profitable than smaller potential price increases. Ordover & Willig explained how the variable SSNIP enables the definition of a relevant market when various groups of products are relatively close competitors.³¹

In the Ordover & Willig example, a frozen string bean monopolist is unable to raise price by five percent without losing too many sales to frozen carrots.³² The frozen bean/carrot monopolist still cannot raise price by five percent without losing too many sales to frozen spinach. The analysis could continue and chain together all frozen vegetables. In effect, the standard SSNIP analysis could create a huge market and totally miss the potential for market power in market niches like string beans and carrots. The bean/carrot monopolist could behave in a less-than-competitive manner by charging the full five percent SSNIP for beans and a smaller price premium for carrots. This price increase might be profitable and thus the standard SSNIP methodology needs to be tweaked to define a relevant market in which to study this special case situation.³³ The variable SSNIP methodology provides the required algorithm.³⁴

Starting with this 1992 special case generalization of the standard SSNIP, it is possible to consider the implications of the Lerner index analysis for market definition when only one price is increased by the SSNIP. The variable SSNIP modeling structure allows the prices of the other products in the market to rise by a de-minimis amount—or even by nothing at all—once one price has increased by the SSNIP and, thus, a single-firm SSNIP merits consideration. Moreover, holding the prices charged for rival products constant would rehabilitate Farrell & Shapiro's mathematical concept, because the math defines the adjustment in the single firm Critical Loss Analysis required for diversions to closely related products.³⁵ As Ten Kate and Niels have proved, aggregate diversion only needs to be greater than the ratio of the SSNIP to

³¹ Ordover & Willig, *supra* note 10

³² *Id.* at 140.

³³ The reader might find a geographic market analysis more convincing. For example, in the suburbs of Washington D.C., the price of gasoline in Annandale is constrained by the price in Fairfax, Springfield, and Falls Church. These prices are constrained by pricing in communities such as Vienna, Arlington, and Burke. This chain could easily expand to cover the entire Washington D.C. area and might even chain north to Boston and south to Richmond. Abstracting from the fact that the function of cars is to drive around (and thus the consumer can buy gas whenever they are in a distant, low-priced community), a variable SSNIP market might be sustainable with a standard SSNIP for Annandale and smaller price increases in the surrounding communities of Fairfax, Springfield, and Falls Church.

³⁴ Only one possible example of this analysis has been identified in a review of FTC mergers and even this example seems better understood as an "in the alternative" market definition argument, so the situations envisioned by Ordover and Willig turn out to be extremely rare. See, Coate & Fischer, *supra* note 16, at fnt 57.

³⁵ Here, the analyst relaxes the Guidelines' requirement of profit maximization by using the breakeven critical loss structure.

the margin for a single-firm SSNIP to isolate a narrow market.³⁶ In this theoretical SSNIP world, markets are almost always narrow, even for relatively low-margin industries. The math works, and the analyst needs only to parameterize the model.

Recycling the German car example, assume a number of potential BMW customers would likely substitute to Mercedes or Audi, given the prices of these products do not materially change in response to the SSNIP affecting the price of BMWs. Thus, predicted Actual Loss in the German luxury car market would need to be adjusted to reflect the sales retained by competitors in the narrow market. Virtually any diversion to products within the proposed market could easily reduce the predicted Actual Loss to a level below the Critical Loss and support a narrow market. Moreover, the model does not even require high margins. If the margin is only 20 percent, the Ten Kate & Niels formula shows that the narrow market would be upheld as long as 25 percent of the lost customers choose the in-market substitute products. It seems quite reasonable to expect one in four disgruntled BMW customers to pick Mercedes or Audi and thus substantiate the narrow German luxury car market.

There are problems with any variable SSNIP approach. To be most useful, the theoretical version of the variable SSNIP must serve to focus the competitive analysis in both collusion and unilateral effects situations. For collusion analysis, the flaw is obvious—only one price must materially increase to define a market. To be credible in a variable SSNIP market, the collusion story must include some type of side-payment mechanism that allows the merged firm to share its profits with competitors that basically hold prices constant. Most, if not almost all side-payment schemes require explicit collusion and thus would be very unlikely to occur after a merger. In effect, the variable SSNIP structure appears likely to preclude collusion analysis.

For unilateral effects analysis, the problems are more subtle. While a variable SSNIP would focus the analysis on a particular theory of concern, it would also artificially narrow the scope of competition within the market. These restrictions are based on the parameterization of the price model, so the exclusion of somewhat distinct rivals would not distort the estimation of a unilateral price effect.

However, modeling the price increase is not the end of the unilateral analysis. Repositioning issues are crucial and the variable SSNIP market is also used to address this problem. Firms selling somewhat similar products can be excluded from the market, because a sufficient number of the merged firm's customers purchase other products in the narrow market in response to the variable SSNIP such that the price increase is profitable. Thus, the repositioning of the firms selling somewhat similar products is never considered in the competitive effects analysis, but put off until the overall entry analyses.³⁷

In theory, sophisticated entry analyses could address this point, but the exclusion of the affected firms amounts to burden shifting.³⁸ Moreover, the Guidelines' likelihood of entry

³⁶ Ten Kate & Niels, *supra* note 8 at equation 6.

³⁷ If the repositioning could occur within one year, with minimal expenditure on sunk costs, the excluded demand side rivals would need to be included in the market on the supply side. In this case, the variable SSNIP analysis would generate the same market as the standard SSNIP.

³⁸ It is well known that merger law requires the plaintiff to substantiate an anticompetitive effect stemming from a merger. By using a variable SSNIP to artificially exclude competitors from the market, the plaintiff avoids bearing its full burden.

analysis models sales opportunities available from the incumbents, while repositioning analysis could consider some of the repositioning firm's current sales as available to build an efficient scale operation. Likewise, an incumbent firm repositioning its product might be expected to capture a larger share of the market growth. By artificially excluding somewhat similar firms from the relevant market, the variable SSNIP structure generally biases the analysis in favor of finding a competitive concern.³⁹

While we admire the mathematical elegance of the theoretical single-firm SSNIP implementation of the Guideline's variable SSNIP construct, the methodology suffers from a collection of disadvantages associated with firm-specific price increases. At best, these methodologies can offer only a special case customization of the standard market definition analysis. No commentator has described the use of any variable SSNIP for market definition by the FTC or the DOJ in any investigation, and we're not aware of one.⁴⁰ Markets should be defined to allow the evaluation of any competitive effects concern and, as we show, the variable SSNIP model often generates narrow markets with very limited usefulness. Thus, a variable SSNIP methodology is not likely to be relevant in the Critical Loss debate.

³⁹ Theorists are likely to observe that the market definition process does not aid the analysis when the unilateral effects of a merger can be estimated directly. It is important to note that market analysis plays an important role in the choice of the priced-based modeling structure. As Coate and Simons point out, competitive analysis can also proceed under the assumptions of either product homogeneity or dynamic differentiation. (Coate & Simons, *supra* note 14). Either structure may identify problems with the performance evidence used to identify a competitive concern and thus it is necessary to fully evaluate the competitive environment.

⁴⁰ One possible exception is the recent case involving the FTC and Whole Foods where the FTC's expert, Professor Murphy, arguably advocated the aggregate diversion ratio approach in conjunction with a variable SSNIP. To the extent Murphy proposed such an approach, it does not appear that the judges or the lawyers involved recognized that he was doing anything out of the ordinary. Ilene K. Gotts, Joseph J. Simons, George T. Conway, & Aidan Synnott, *Recent DC Circuit Decisions in Whole Foods Leave Standard for Future Mergers Unsettled*, 12 COMPETITION L. INTERNATIONAL 2009.