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The predictive power of merger analysis

BY JOHN B. KIRKWOOD*

This article looks first at the process courts use to resolve merger challenges and finds that in the area of product market definition, merger analysis is reasonably strong. Market definition remains complex and subjective, however, and could be improved, or avoided altogether, through econometric techniques such as merger simulation. Judicial analysis of entry is much weaker. Courts ask whether the market is protected by entry barriers but rarely ask whether the barriers are high enough to make entry unprofitable.

The article also examines the results of “marginal” mergers, mergers that would have been blocked had the government and courts been somewhat more aggressive. Measured in this way, merger analysis is not seriously off target: the merger retrospectives find that very few transactions led to sharp price changes. They also find, however, that a large proportion of marginal mergers resulted in small price increases, which suggests that in appropriate cases, enforcement agencies and courts should be more willing to predict anticompetitive effects.

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I. INTRODUCTION

Merger analysis is typically an exercise in prediction. Although the federal government sometimes challenges a consummated merger,¹ the vast majority of federal cases involve *proposed* mergers, and their competitive effects can only be predicted.² As we will see, this feature tends to make merger analysis difficult and complex, but it does not make it impossible or wildly inaccurate. To the contrary, as I explain in this article, current merger analysis, even when practiced by generalist judges, is frequently sophisticated and reasonably accurate. It is not, however, usually simple, completely objective, or always correct. As a result, there is room for improvement, both in how courts appraise mergers and in the government's evaluation of a possible challenge.

The most promising sources of improvement are two econometric techniques—merger simulation and merger retrospectives. Merger simulation, a way to model the likely impact of a merger, is the most promising innovation in merger analysis in recent years. As this technique is refined, it could enhance the predictive power of merger analysis substantially. Merger retrospectives, in contrast, are economic studies of *past* mergers, and they have consistently, though not uniformly, found that the mergers they studied led to significant—but not dramatic—price increases. As I explain below, this pattern has two implications: it indicates that merger analysis has not been seriously off target, but it also suggests that in appropriate cases, courts and enforcement agencies ought to be more willing to predict competitive

¹ For a well-known recent example, see *In re Evanston Nw. Healthcare Corp.*, 2007-2 Trade Cas. (CCH) ¶ 75,814 (Comm'n Decision Aug. 2, 2007).

² See, e.g., U.S. DEP'T OF JUSTICE & FEDERAL TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 1, 57 Fed. Reg. 41,552 (Apr. 2, 1992), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,104 (as revised Apr. 8, 1997) [hereinafter HORIZONTAL MERGER GUIDELINES] ("Most merger analysis is necessarily predictive, requiring an assessment of what will likely happen if a merger proceeds as compared to what will likely happen if it does not."); Alison Oldale, *Behavioral Economics and Merger Analysis*, 6 COMPETITION POL'Y INT'L 139, 142 (2010) ("merger control is all about predicting firm behavior"); Michael L. Katz & Howard A. Shelanski, *Merger Analysis and the Treatment of Uncertainty: Should We Expect Better?* 74 ANTITRUST L.J. 537, 538 (2007) ("Each of [the steps in a merger review] involves making predictions based on incomplete information about current or future facts, predictions that are almost inevitably subject to a high degree of uncertainty.").

harm. Placing more emphasis on merger retrospectives—giving more weight to those already conducted and conducting more of them in the future—may increase the accuracy of merger enforcement significantly.

In the remainder of this article, I appraise the predictive power of merger analysis as it is currently practiced and identify areas for improvement. In part II, I set the stage by noting that the pertinent statutes—section 7 of the Clayton Act and section 13(b) of the Federal Trade Commission Act (FTC Act)—allow the government, and particularly the Federal Trade Commission (FTC), to stop a proposed merger without showing that the merger is “likely” to reduce competition. Instead, all the government must prove is that there is a “reasonable probability” of competitive harm. In predicting the likelihood that a merger will be anticompetitive, in short, the courts need to find a substantial probability of harm, but that probability does not have to exceed fifty percent.

In part III, I address how the courts apply this standard. Because the process of merger litigation is familiar to most readers, I focus on just two issues, product market definition and the likelihood of entry, and three recent cases, *Whole Foods*,³ *Oracle*,⁴ and *Staples*.⁵ This brief review, however, is more than sufficient to illuminate the essence of the process: in order to predict the competitive consequences of a merger, courts look at the relevant issues from multiple perspectives. Because judges are rarely comfortable resting their decisions on a single category of evidence, they use a variety of evidentiary tools, weighing each for its relevance and probative value.⁶ By its nature, this process is difficult, complex, and judgmental, leaving courts in most cases without a clear, objective answer. Given our current state of knowledge, however, there is no escape from this imperfect and

³ *FTC v. Whole Foods Mkt., Inc.*, 548 F.3d 1028 (D.C. Cir. 2008).

⁴ *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098 (N.D. Cal. 2004).

⁵ *FTC v. Staples, Inc.*, 970 F. Supp. 1066 (D.D.C. 1997).

⁶ The pricing evidence in *Staples* is the closest thing the courts have found in recent years to a single, dispositive category of evidence. But even that evidence could not be relied upon without evaluating alternative explanations for it. See *infra* part III.A.2. Moreover, even though Judge Hogan rejected all the alternative explanations, he still did not rely exclusively on the pricing evidence. To the contrary, in defining the relevant product market, he examined many other types of evidence as well. See *Staples*, 970 F. Supp. at 1073–81.

subjective process.⁷ But it can be improved. Product market definition can be enhanced, if not avoided altogether, through better and more frequent use of merger simulations. Entry analysis can be made more rigorous by requiring defendants, if they contend that entry is easy, to establish that new entry would be profitable.⁸ And the entire process can be made more precise by conducting more merger retrospectives and applying the results to the review of proposed mergers.

In part IV, I look in more detail at the merger retrospectives and assess their implications for merger control. If the predictive power of merger analysis was low—if the government and the courts were unable to determine with any precision which mergers were likely to be anticompetitive—then mergers that are not challenged would vary dramatically in their outcomes, from large price increases to huge price reductions. The merger retrospectives do not find this. Instead, they conclude that most “marginal” mergers—mergers that would have been halted had the government and the courts been somewhat more aggressive—led to small but significant price increases. This relatively narrow band of results suggests that the predictive power of merger analysis is not seriously deficient. At the same time, however, the predominance of price increases in the retrospectives suggests that courts and agencies may be systematically underpredicting competitive harm. To be sure, the retrospectives are not a random sample of all marginal mergers, and their results cannot be used to justify a general escalation of merger enforcement. But in appropriate cases, they may supply a significant additional reason to block a merger.⁹

⁷ See Ken Heyer, *Predicting the Competitive Effects of Mergers by Listening to Customers*, 74 ANTITRUST L.J. 87, 89 (2007) (“Virtually all forms of evidence are subject to criticism of one sort or another, as are the inferences one attempts to draw from them. While this article focuses primarily on the testimony of customers, it recognizes that there are no simple, foolproof, alternatives. Ultimately, it is the difficult task of competition authorities and the courts to weigh the totality of the evidence put before them.”).

⁸ See John B. Kirkwood & Richard O. Zerbe, Jr., *The Path to Profitability: Reinventing the Neglected Phase of Merger Analysis*, 17 GEO. MASON L. REV. 39 (2009).

⁹ This article evaluates the ability of the courts and enforcement agencies to predict the competitive impact of a proposed merger. It does not evaluate the ability of merging parties to predict the decisions of courts or agencies. The two

In part V, I summarize these conclusions and propose areas for further development.

II. THE INCIPIENCY STANDARDS OF MERGER LAW

Section 7 of the Clayton Act prohibits one company from acquiring the stock or assets of another company “where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition *may be* substantially to lessen competition, or to tend to create a monopoly.”¹⁰ The italicized language indicates that a court may halt a merger or acquisition even if the evidence does not show that the transaction “will be” anticompetitive or is “likely to be” harmful. Under section 7, a court may enjoin a merger if the government can establish that the transaction “may be” anticompetitive.

Congress used this language to allow the government and the courts to stop competitive problems in their “incipiency”¹¹—that is, before they had grown to substantial proportions. It was also intended to reach mergers whose anticompetitive effects were probable but not certain.¹² Taken literally, however, the “may be” language is even broader: it authorizes courts to halt mergers when there is only a small possibility of competitive harm.¹³ In such cases, the likeli-

types of prediction are different, and steps to enhance the latter—such as clearer rules of law or simpler enforcement guidelines—may impair the former.

¹⁰ 15 U.S.C. § 18 (2010) (emphasis added).

¹¹ See HORIZONTAL MERGER GUIDELINES, *supra* note 2, § 1 (“these Guidelines reflect the Congressional intent that merger enforcement should interdict competitive problems in their incipency”). In *Brown Shoe Co. v. United States*, 370 U.S. 294, 317–18 (1962), the Court stated that because of a “rising tide of economic concentration—[Congress wanted mergers to be halted] at a time when the trend to a lessening of competition in a line of commerce was still in its incipency.” See also Robert H. Lande, *Resurrecting Incipency: From Von’s Grocery to Consumer Choice*, 68 ANTITRUST L.J. 875, 876–77 (2001).

¹² See HORIZONTAL MERGER GUIDELINES, *supra* note 2, § 1 (“certainty about anticompetitive effect is seldom possible and not required for a merger to be illegal”).

¹³ PHILLIP E. AREEDA & HERBERT HOVENKAMP, IV ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION ¶ 905b, at 31 (3d ed. 2009) (section 7’s “prohibition of mergers where the effect ‘may be’ substantially to lessen competition is extremely open and may even have been thought to condemn any merger where a lessening of competition is merely possible”).

hood that the merger is procompetitive is much higher. To avoid such perverse results, the courts have not read section 7 literally; instead, they have insisted that the government prove that a substantial lessening of competition is “reasonably likely.”¹⁴ While the cases have not assigned a specific number to that term—they have not, for example, stated that the government must establish that the probability of harm exceeds thirty percent—the insertion of the word “reasonably” into the standard indicates that the government can prevail even though the likelihood of harm is less than fifty-one percent. Otherwise, the courts would declare that the government must establish that a substantial lessening of competition is “likely” or “probable” or “more likely than not.” No recent decision has employed such a test.

When the FTC seeks a preliminary injunction, the probability of harm it must establish may be even lower. Section 13(b) of the FTC Act authorizes the FTC to request, and a court to grant, a preliminary injunction after the court considers, among other things, the FTC’s “likelihood of success.”¹⁵ After some disagreement, the courts have now settled on a single test to determine whether the FTC has shown a sufficient likelihood of success: a court may grant the injunction as long as the FTC “has raised questions going to the merits so serious, substantial, difficult and doubtful as to make them fair ground for thorough investigation, study, deliberation and determination by the FTC in the first instance and ultimately by the Court of Appeals.”¹⁶ This “substantial questions”

¹⁴ *United States v. Penn-Olin Chem. Co.*, 378 U.S. 158, 171 (1964) (a section 7 violation is established when “the ‘reasonable likelihood’ of a substantial lessening of competition in the relevant market is shown”); *Hosp. Corp. of Am. v. FTC*, 807 F.2d 1381, 1389 (7th Cir. 1986) (“Section 7 does not require proof that a merger or other acquisition [will] cause higher prices in the affected market. All that is necessary is that the merger create an appreciable danger of such consequences in the future.”); *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1109 (N.D. Cal. 2004) (“To establish a section 7 violation, plaintiffs must show that a pending acquisition is reasonably likely to cause anticompetitive effects.”).

¹⁵ See 15 U.S.C. § 53(b) (2010).

¹⁶ *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 714–15 (D.C. Cir. 2001); *FTC v. Freeman Hosp.*, 69 F.3d 260, 267 (8th Cir. 1995); *FTC v. University Health, Inc.*, 938 F.2d 1206, 1218 (11th Cir. 1991); *FTC v. Warner Commc’ns Inc.*, 742 F.2d 1156, 1162 (9th Cir. 1984); *FTC v. Whole Foods Mkt., Inc.*, 548 F.3d 1028, 1042 (D.C. Cir. 2008) (Tatel, J., concurring); *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1071 (D.D.C. 1997).

test allows the FTC to block mergers, at least temporarily, without showing that a violation of section 7 is more likely than not.

In theory, therefore, the Commission may obtain a preliminary injunction merely by raising substantial questions as to whether it could later (in an administrative proceeding) show that the challenged merger is “reasonably likely” to be anticompetitive. That is, the FTC could halt the merger simply by proving there is a substantial chance it could later establish a substantial chance that the transaction is anticompetitive. In short, section 7 and section 13(b), when read together, imply that the Commission can prevail in a preliminary injunction action even though the ultimate probability of competitive harm is quite low.¹⁷

It is far from clear, however, that the courts routinely grant the FTC’s requests for a preliminary injunction when the probability of a lessening of competition is so modest. After all, a preliminary injunction usually spells the end of the transaction, since most merging parties are unwilling to wait for the FTC (and often an appellate court as well) to render a final ruling on whether the merger violates section 7.¹⁸

¹⁷ Suppose that the FTC can satisfy section 13(b) if it shows there is a substantial chance (say forty percent) that it can establish a violation of section 7 in an administrative proceeding. And suppose the FTC can establish a “reasonable likelihood” of competitive harm in the administrative proceeding (and thus make out a violation) if it can prove that the likelihood of harm is thirty percent. If so, the FTC would be entitled to a preliminary injunction even though the ultimate probability of harm was only twelve percent (forty percent of thirty percent). Similarly, if section 7 and section 13(b) each required a probability of fifty percent, the ultimate probability of harm would be only twenty-five percent. See Thomas A. Lambert, *Four Lessons from the Whole Foods Case*, 31 REGULATION 22, 29 (2008) (“The FTC must establish only a 50 percent likelihood that there is a 50 percent chance that the merger would substantially lessen competition. This effectively means that a preliminary injunction may be granted if the FTC can show facts establishing a 25 percent likelihood that the challenged merger will substantially reduce competition.”).

¹⁸ See Jonathan B. Baker & Robert Pitofsky, *A Turning Point in Merger Enforcement: Federal Trade Commission v. Staples*, in ANTITRUST STORIES 311 (Eleanor M. Fox & Daniel A. Crane eds., 2007) (“[T]he award of a preliminary injunction usually means the end of the deal in practical terms” because “mergers are time sensitive: a long pending transaction held up by government review in a full trial can have an adverse effect on the morale of executives and staff, adversely affect stock market prices, and harm firm reputations (particularly of the acquired firm) in the marketplace.”).

As a result, courts may well treat a preliminary injunction action as an action for a permanent injunction and implicitly apply the standard for a violation, not the section 13(b) standard, in deciding whether to issue a preliminary injunction. Indeed, a number of courts have expressly declared that they will award a preliminary injunction only if the FTC satisfies the standard for a violation. In *Staples*, for example, although Judge Hogan quoted the section 13(b) standard, he also announced: “[I]n a suit for a preliminary injunction, the government [must] show that there is a ‘reasonable probability’ that the challenged transaction will substantially impair competition.”¹⁹ Other courts have imposed the same requirement.²⁰

In appraising the predictive power of merger analysis, therefore, I will not assume that the probability threshold is lower in an FTC case than in a Justice Department case. But whether or not that is the right course, the main point is that both federal enforcement agencies may establish a violation of section 7 without showing that the transaction is “likely” to be anticompetitive. Some probability of harm short of fifty-one percent is sufficient.

One other complication should be mentioned. I have treated merger analysis so far as if there were only two possibilities—the proposed merger will be either anticompetitive or procompetitive—and the task of the enforcement agencies and the courts is to determine whether there is a reasonable probability of the anticompetitive outcome. As Michael Katz and Howard Shelanski have pointed out, however, this is an oversimplification. A merger may have a variety of consequences, some positive, some negative, some immediate, some remote, some larger, some smaller, some with a higher probability, some with a lower probability. The proper way to predict the competitive impact of a merger is to identify each consequence and calculate a “net expected value” by weighting each consequence by its size, direction, probability, and timing, and then adding up all the

¹⁹ *Staples*, 970 F. Supp. at 1072.

²⁰ See *FTC v. Univ. Health*, 938 F.2d 1206, 1218 (11th Cir. 1991); *Fruehauf Corp. v. FTC*, 603 F.2d 345, 351 (2d Cir. 1979); *FTC v. CCC Holdings Inc.*, 605 F. Supp. 2d 26, 35 (D.D.C. 2009).

weighted consequences.²¹ Katz and Shelanski recognize that this theoretically precise approach may be beyond the capacity of judges, who may be “incapable of calculating expected values with any degree of reliability or accuracy.”²² But whether or not judges have the ability to perform the proper calculations, they do not do so now. As a result, in describing their approach, I will assume, as they do, that there are only two outcomes—one anticompetitive and one procompetitive—and their charge is to determine whether the anticompetitive outcome is reasonably likely.²³

III. THE LITIGATION PROCESS

Courts determine whether a merger is reasonably likely to reduce competition by working through the elements of merger analysis, beginning with market definition and ending with efficiencies. I will illustrate the process by focusing on two elements: product market definition, the first issue and the one that receives the most attention, and the likelihood of entry, a subsequent step that is often handled more perfunctorily.

A. *Product market definition*

Market definition draws so much attention not only because it is the first step in merger analysis but also because it is frequently deci-

²¹ See Katz & Shelanski, *supra* note 2. They describe the conventional approach as follows: “At least in litigation, the agencies generally put forth a single likely scenario concerning concentration and competitive effects; they do not specify a distribution of possible, probability-weighted outcomes and explain why that range of outcomes justifies enforcement.” *Id.* at 547. Katz and Shelanski argue that “the standard tools of decision theory offer a better approach. Specifically, the agencies and courts should: Account for uncertainty by estimating probability for various events and then calculating net expected benefits” *Id.* at 571.

²² *Id.* at 554.

²³ In the case of a merger that is likely to start or continue a trend toward concentration—the principal basis for the incipency standard of section 7—the merger might be stopped even though it would not, by itself, be anticompetitive. No recent decision, however, has enjoined a merger on this ground. Instead, judges evaluate whether the merger they are reviewing would on its own create a reasonable probability of lessening competition.

sive. Indeed, market definition may be the most important single issue in all of antitrust law. Jonathan Baker states: "Throughout the history of U.S. antitrust litigation, the outcome of more cases has surely turned on market definition than on any other substantive issue."²⁴

The purpose of market definition is to help assess market power, the ability of a firm (or group of firms) to profitably raise price above the competitive level. More precisely, in the case of a merger, the purpose of market definition is to assess whether the merged firm could profitably raise price above the level that would have prevailed in the absence of the merger.²⁵ Product market definition helps assess such power by dividing the range of competing or potentially competing products into those that would prevent a significant postmerger price increase and those that would not. Those that would not are deemed to be outside the relevant product market. Those that would be deemed to be within the relevant market.

²⁴ Jonathan B. Baker, *Market Definition: An Analytical Overview*, 74 ANTITRUST L.J. 129 (2007); see also *FTC v. Whole Foods Mkt., Inc.*, 548 F.3d 1028, 1051 (D.C. Cir. 2008) ("As in many antitrust cases, the analysis comes down to one issue: market definition.") (Kavanaugh, J., dissenting).

²⁵ The customary practice is to discuss market power (and, indeed, all of merger analysis) as if the only variable of interest was price. For simplicity, I will follow this practice, but that does not mean that nonprice variables like service, quality, innovation, or variety may not be equally or more important in a particular case. See HORIZONTAL MERGER GUIDELINES, *supra* note 2, § 1 ("For simplicity of exposition, these Guidelines generally discuss the analysis in terms of . . . price effects. Enhanced market power can also be manifested in non-price terms and conditions that adversely affect customers, including reduced product quality, reduced product variety, reduced service, or diminished innovation.").

In the case of a consummated merger, market definition may be unnecessary if there is direct evidence of the exercise of market power—for example, evidence that the merger caused an anticompetitive price increase or an anticompetitive reduction in consumer choice. See *id.* § 2.1.1 ("When evaluating a consummated merger, [evidence] of observed post-merger price increases or other changes adverse to customers is given substantial weight. The [Department of Justice and the FTC] evaluate whether such changes are anticompetitive effects resulting from the merger, in which case they can be dispositive.").

Merger analysis has developed a theoretically rigorous tool for making this determination. This tool, the hypothetical monopolist test, is set forth in the Horizontal Merger Guidelines:

[The test] requires that a product market contain enough substitute products so that it could be subject to post-merger exercise of market power significantly exceeding that existing absent the merger. Specifically, the test requires that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future seller of those products ("hypothetical monopolist") likely would impose at least a small but significant and non-transitory increase in price . . . on at least one product in the market, including at least one product sold by one of the merging firms.²⁶

In essence, the hypothetical monopolist test asks whether a single firm could profitably raise price if it controlled all the products within a tentative or candidate relevant market. If it could, the tentative market is the relevant product market. If not, the tentative market must be expanded, for products outside the tentative market would constrain the exercise of postmerger market power.

The difficulty in product market definition is in applying this test—predicting which products, if any, beyond those produced by the merging firms would prevent a postmerger price increase. Where the number of possible substitutes is large, where those products are differentiated from each other in relatively minor ways, or where both complications are present, it can be a challenge to decide which products are inside and which are outside the relevant market. As Baker notes, "market boundaries are difficult to draw . . . in industries in which firms are differentiated in product . . . space, particularly when those spaces are densely packed with large numbers of sellers differentiated by small degrees."²⁷

In order to deal with this challenging but pivotal issue, courts typically examine many different types of evidence, ranging from the rel-

²⁶ HORIZONTAL MERGER GUIDELINES, *supra* note 2, § 4.1.1.

²⁷ Baker, *supra* note 24, at 131. When courts press ahead, despite these difficulties, and draw a single market boundary, the resulting conclusion may be mistaken or misleading. See Robert Pitofsky, *New Definitions of Relevant Market and the Assault on Antitrust*, 90 COLUM. L. REV. 1805, 1812–13 (1990) ("The tendency to see relevant market definition as an all-or-nothing proposition rather than as an array of estimates with no market description being exactly right has led to the most serious errors in antitrust enforcement.").

atively simple (e.g., product descriptions) to the very sophisticated (e.g., merger simulations). Courts use multiple evidentiary tools because no single tool is likely to be dispositive.²⁸ While a particular category of evidence may be highly indicative, there are normally other explanations for it, or other inferences that could be drawn from it, and as a result, fact finders ordinarily examine the issue from multiple perspectives before reaching a conclusion. In the following survey, I identify the principal types of evidence courts use to resolve the product market issue and briefly appraise their utility.

1. PRODUCT DESCRIPTIONS Courts ordinarily begin their analysis of product market definition by describing the product or products in the government's relevant market and comparing them to the products the defendants want to add. This simple exercise not only sets the stage for the more complicated analysis that follows but may itself shed significant light on the ultimate issue. If the government's products are quite different, physically and functionally, from the products the defendants want to include, there is good reason to suspect that the defendants' products would not constrain a price increase on the government's products and should be excluded from the relevant market.

Perhaps the best known example of this logic is in *Staples*, where the product market issue was whether the relevant market could be confined to office supply superstores or whether it also had to include other retailers of office supplies. To resolve that issue, Judge Hogan visited both retail formats and was struck by the differences:

Based on the Court's observations, the Court finds that the unique combination of size, selection, depth and breadth of inventory offered by the superstores distinguished them from other retailers. . . . No one entering Staples or Office Depot would mistakenly think he or she was in Best Buy or CompUSA. You certainly know an office superstore when you see one.²⁹

Similarly, in *Whole Foods* Judge Brown pointed to both physical and intangible distinctions between conventional supermarkets and "premium natural and organic supermarkets":

²⁸ See *supra* note 6.

²⁹ *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1079 (D.D.C. 1997).

It was undisputed that Whole Foods and Wild Oats provide higher levels of customer service than conventional supermarkets, a “unique environment,” and a particular focus on the “core values” these customers espoused. The FTC connected these intangible properties with concrete aspects of the [premium natural and organic supermarkets] model, such as a much larger selection of natural and organic products, and a much greater concentration of perishables than conventional supermarkets.³⁰

In *Oracle*, moreover, Judge Walker rejected the government’s market definition in part because he felt the government had failed to articulate clear differences between the characteristics of “high function” enterprise-planning software and those of “mid-market” software.³¹

Judge Walker’s analysis rested on the proposition that products are likely to be in the same market if there are no significant physical, functional, or intangible differences between them. The reverse, however, is not necessarily true. Products *A* and *B* may be physically and functionally differentiated, but the relative price levels of the two products may reflect this differentiation. As a result, a price increase on product *A* may drive large numbers of customers to product *B*, and this shift may render the price increase unprofitable. In *Whole Foods*, the dissenting judge relied on this reasoning when he wrote: “So-called organic supermarkets are engaged in product differentiation; they do not constitute a product market separate from all supermarkets.”³² Differences in product characteristics, therefore, are unlikely to be dispositive of the market definition issue, unless they are either very large or almost nonexistent.

2. PRICE DIFFERENCES Price differences between products are like differences in product characteristics: they can suggest, perhaps strongly, that two products are in different markets, but they do not prove the point. In contrast, price differences between geographical markets can be powerful evidence. In *Staples*, Judge Hogan found it “compelling”³³ that “in markets where Staples faces no office

³⁰ *FTC v. Whole Foods Mkt., Inc.*, 548 F.3d 1028, 1039 (D.C. Cir. 2008).

³¹ *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1139 (N.D. Cal. 2004).

³² *Whole Foods*, 548 F.3d at 1056 (Kavanaugh, J., dissenting).

³³ *Staples*, 970 F. Supp. at 1081.

superstore competition at all, something which was termed a one firm market during the hearing, prices are 13% higher than in three firm markets where it competes with both Office Depot and OfficeMax.”³⁴ This kind of evidence—that prices are higher in geographic markets in which there are fewer sellers of the product—strongly suggests that the product is a separate market.

The problem, as Judge Hogan recognized, is that there may be other explanations for this pricing pattern. For example, prices may be higher in geographic markets with only one office superstore chain because costs are higher and demand is lower in those markets, and those features explain why only one superstore chain has entered those markets.³⁵ In fact, Judge Hogan rejected all the alternative explanations and concluded that the higher prices in one-superstore markets reflected the market power of the superstore chain in those markets.³⁶

The issue was important enough, however, that all the parties poured resources into econometric analyses of the price differences, hoping to show through their regressions that costs or other alternative explanations either did or did not account for the price variations. Despite the scale of the effort,³⁷ Judge Hogan did not even mention, much less rely on, any of these regressions,³⁸ suggesting that none of them employed a model and a set of data that were free from dispute.

³⁴ *Id.* at 1075–76.

³⁵ *See id.* at 1084 (Defendants argued that the price “differentials are the result of a host of factors other than superstore competition. As examples . . . the defendants offered sales volume, product mix, marketing or advertising costs, and distribution costs.”); *see also* Baker & Pitofsky, *supra* note 18, at 321 (“Prices were high in non-competitive markets, [defendants] contended, for the same reason that other superstores had not entered those markets: costs of doing business—for example, real estate rents—were high.”).

³⁶ *Staples*, 970 F. Supp. at 1084 (“The Court, however, cannot find that the evidence submitted by the defendants with respect to other reasons for the differences in pricing between one, two, and three firm markets is sufficient to rebut the Commission’s evidence.”).

³⁷ Baker & Pitofsky, *supra* note 18, at 319 n.17 (in *Staples* the FTC “made what is likely the most extensive commitment of resources to econometric analysis in any government antitrust case, before or since”).

³⁸ *See id.* at 321 (“Judge Hogan later said he decided the case based on company documents rather than the econometrics.”).

This, of course, is a general problem with econometrics, whether it takes the form of regressions, merger simulations, or merger retrospectives. Although it can be more rigorous and powerful than other types of evidence, it frequently suffers from data limitations or modeling assumptions that render it questionable.

Judge Hogan's market definition analysis would have been more precise had he asked whether the prices of other office supply retailers were higher in geographic markets containing only one or two superstore chains. Were they not—if other retailers' prices were essentially the same regardless of the number of superstore chains in a geographic market—then the sale of office supplies by superstore chains would have constituted a distinct product market even if superstore prices were higher simply because superstore costs were higher. The presence of other retailers would not have prevented the superstore chains from raising their prices to reflect those higher costs. Market definition is ultimately about the constraining power of other products. If superstore prices varied by geographic market, but other retailers' prices did not, then those other retailers did not constrain superstore prices—and thus should be excluded from the market—whether or not superstore prices could be explained by higher costs.

3. COMPANY DOCUMENTS A document from one of the merging firms that predicts an anticompetitive price increase after the merger is perhaps the most prized exhibit the government can introduce. On its face, it appears to establish the necessary likelihood of competitive harm, since it seems to reflect the forecast of one of the merging parties itself. In both *Whole Foods* and *Staples*, the courts cited such documents. Judge Tatel quoted John Mackey's assertion that "By buying [Wild Oats] we will . . . avoid nasty price wars in [several cities where both companies have stores]."³⁹ Judge Hogan noted that a Staples "document analyzing a possible acquisition of OfficeMax referenced the '[b]enefits from pricing in [newly] noncompetitive markets,' and also the fact that there was 'a potential margin lift overall as the industry moves to 2 players.'"⁴⁰ As alluring as these

³⁹ *FTC v. Whole Foods Mkt., Inc.*, 548 F.3d 1028, 1047 (D.C. Cir. 2008) (Tatel, J., concurring).

⁴⁰ *Staples*, 970 F. Supp. at 1079.

documents can be to the government, however, their probative value is often limited: the document may refer to a minor anticompetitive effect, the anticompetitive effect may be overshadowed by longer-run procompetitive effects, the document may be authored by a low-ranking executive, or it may be contradicted by many other documents. In contrast, a document prepared by a high ranking official for the company's board of directors that analyzes the predicted consequences of the transaction may be of much greater significance.

In addition, courts frequently rely on other, less dramatic company documents. In deciding the market definition issue, for example, judges commonly cite documents from the merging parties that reveal which companies or products the firms regard as their competitors. In *Staples*, the court noted that "the merging parties evaluate their 'competition' as the other office superstore firms, without reference to other retailers, mail order firms, or independent stationers."⁴¹ Documents that simply name "competitors," however, may be of limited utility. The competitors they identify may be rivals in the sense that they occasionally take business from the merging parties, but they may not be able to take enough business to prevent a postmerger price increase. Alternatively, the documents may name only the firms' principal rivals, leaving out smaller competitors who, in the aggregate, would constrain the merged firm. More illuminating are documents that disclose which firms a merging party price checks or monitors, since the extent of such monitoring is likely to be calibrated, at least roughly, to the size of the competitive threat the merging firm perceives.⁴²

⁴¹ *Id.*

⁴² See Baker, *supra* note 24, at 141 ("evidence about the extent to which firms monitor and respond to the price changes and new product introductions of rival sellers, and about the products and locations of the rivals that have their greatest attention, is commonly employed as a guide to the products and locations where buyer substitution is the most likely"); *Whole Foods*, 548 F.3d at 1054 (Kavanaugh, J., dissenting) ("Whole Foods would not examine the locations of and price check conventional grocery stores if it were not a competitor of those stores. Whole Foods does not price check Sports Authority; Whole Foods does price check Safeway."). See also *Staples*, 970 F. Supp. at 1080 ("[I]t is clear from the evidence that Staples and Office Depot

4. CUSTOMER VIEWS Antitrust places considerable weight on customer views. In part, this reflects the overarching goal of the antitrust laws—protecting consumers from exploitation at the hands of firms that have unjustifiably acquired market power.⁴³ Because some customers are consumers, and other customers’ interests are generally aligned with those of consumers,⁴⁴ it makes sense to hear what the people antitrust is trying to protect—or their surrogates—have to say about the transaction.⁴⁵ In addition, customers often have valuable information. At the most basic level, they can tell the court which products in the marketplace fulfill their needs. They may also be able to testify on the ultimate predictive issue in market definition — whether they would continue to purchase the merged firm’s products in the event of a significant and sustained postmerger price increase. In *Oracle*, a vice president of DaimlerChrysler provided testimony on both issues. He stated that “only SAP, PeopleSoft or Oracle could service [DaimlerChrysler’s] need for the [human resources] management [software].”⁴⁶ He also declared that “if Oracle, SAP or PeopleSoft were to increase their price for [human resources manage-

price check the other office superstores much more frequently and extensively than they price check other retailers such as BJ’s or Best Buy, and that Staples and Office Depot are more concerned with keeping their prices in parity with the other office superstores in their geographic areas than in undercutting Best Buy or a warehouse club.”).

⁴³ See John B. Kirkwood & Robert H. Lande, *The Fundamental Goal of Antitrust: Protecting Consumers, Not Increasing Efficiency*, 84 NOTRE DAME L. REV. 191 (2008).

⁴⁴ See Thomas O. Barnett, Deputy Assistant Attorney General, Antitrust Division, U.S. Dep’t of Justice, Antitrust Enforcement Priorities: A Year in Review, Remarks Before ABA Section of Antitrust Law Fall Forum (Nov. 19, 2004), available at <http://www.usdoj/atr/public/speeches/206455.htm> (“Customer . . . incentives generally are aligned with our goals of protecting competition.”).

⁴⁵ In the case of a merger of buyers that may create monopsony power, antitrust’s ultimate aim goal is to protect small suppliers from anticompetitive exploitation. See Kirkwood & Lande, *supra* note 43. In such a case, it would make sense to probe the views of suppliers.

⁴⁶ *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1125–26 (N.D. Cal. 2004).

ment software] by 10 percent," he "would not consider an offer from any other vendors."⁴⁷ Finally, customers who testify in opposition to a merger deserve added credibility because they have to speak out against a major supplier.⁴⁸

Despite all these reasons to privilege customer testimony, it can be unreliable and inaccurate. For example, in some instances customers can be biased. Suppose that customer *A* buys relatively little of the merging firm's product while its major rivals depend heavily on the product. Customer *A* may testify in support of the merger, even though it expects a significant price increase, because it will gain a competitive advantage over its rivals if the merger takes place and prices rise.⁴⁹ Moreover, the customers who testify may not be representative of those who do not. This may occur if the customers are not similarly situated, as in the bias example. But it can also occur because of the same uncertainties that afflict judicial analysis of a merger: customers may differ in their evaluations of the transaction and thus in their predictions of its effects. And those who speak out may not share the views of the much larger number of customers who do not.⁵⁰

⁴⁷ *Id.* at 1126.

⁴⁸ See Heyer, *supra* note 7, at 121 ("In cases where knowledgeable customers actually do step forward to incur the costs and risks associated with testifying against their major suppliers, this fact alone—with appropriate caveats for the various possible biases highlighted above—suggests that their concerns are deeply felt, and quite possibly meritorious.").

⁴⁹ See *id.* at 94 ("Often, intermediate customers compete downstream against one another, and a merger can prove beneficial to some of them *not* because the merger is good for final consumers but, rather, because the merger harms the competitors of these customers (including, perhaps, potential entrants into these customers' line of business) by more than it harms them."). Heyer's article also discusses other sources of customer bias.

⁵⁰ See *United States v. Engelhard*, 126 F.3d 1302, 1306 (11th Cir. 1997) ("No matter how many customers in each end-use industry the Government may have interviewed, those results cannot be predictive of the entire market if those customers are not representative of the market."); *United States v. SunGard Data Systems*, 172 F. Supp. 2d 172, 191 (D.D.C. 2001) ("The sampling of customer statements before the Court is minuscule when compared with the entire universe of defendants' shared hot-site customers In addition, the record does not indicate whether the customers cited by plaintiff are representative of the entire universe of shared hot-site clients."). See also *Oracle*,

Customer testimony may also be rejected because it is not adequately supported. In *Oracle*, Judge Walker refused to rely on the views of the government's customer witnesses, even though he acknowledged that they were all "extremely sophisticated buyers and users of information technology" with "decades of experience in negotiating in this field,"⁵¹ because none of them backed up their testimony with a quantitative analysis of why they could not afford to turn to alternative products in the event of a post merger price increase:

[T]he issue is not what solutions the customers would like or prefer for their data processing needs; the issue is what they could do in the event of an anticompetitive price increase by a post-merger Oracle. Although these witnesses speculated on that subject, their speculation was not backed up by serious analysis that they had themselves performed or evidence they presented [N]one gave testimony about the cost of alternatives to the hypothetical price increase a post-merger Oracle would charge: e.g., how much outsourcing would actually cost, or how much it would cost to adapt other vendors' products to the same functionality that the Oracle and PeopleSoft products afford.⁵²

While Judge Walker may have overreacted in this case, treating useful predictions by customers as mere speculation,⁵³ his basic point seems valid. When customers are satisfied with their existing suppli-

331 F. Supp. 2d at 1167 ("Drawing generalized conclusions about an extremely heterogeneous customer market based upon testimony from a small sample is not only unreliable, it is nearly impossible.").

This objection would not apply if the customers who testify are representative of a subset of purchasers who are vulnerable to a postmerger price increase because of the merged firms' ability to price discriminate against them. See HORIZONTAL MERGER GUIDELINES, *supra* note 2, § 3 ("When price discrimination is feasible, adverse competitive effects on targeted customers can arise, even if such effects will not arise for other customers.").

⁵¹ *Oracle*, 331 F. Supp. 2d at 1131.

⁵² *Id.*

⁵³ See Heyer, *supra* note 7, at 103 (Walker's "inference appears highly dubious in light of the mission-critical nature of the products in question, the amount of money at stake in the procurements, and how knowledgeable and sophisticated the customer witnesses were conceded by the court to have been."); Baker, *supra* note 24, at 140 n.43 (Walker required "an expensive new analysis that would not routinely be undertaken in the ordinary course of business.").

ers, they have little reason to explore alternatives, and being unfamiliar with them, may be happy to testify that they would not turn to any other products in the event of a price rise. But if the challenged merger actually leads to a price increase, and their profits fall as a result, they may find themselves working hard to discover a cost-effective alternative—and may learn that there is indeed one. For this reason, customer testimony is more credible if it is supported by some cost-benefit analysis of alternatives.

5. EXPERT TESTIMONY Each party in merger litigation normally concludes its affirmative case with the testimony of its economic experts.⁵⁴ Economic experts perform three principal functions in an antitrust case. First, they synthesize the rest of the evidence from an economic perspective, explaining what it means, as a matter of economic theory, for the central issues in the case.⁵⁵ Second, they conduct their own quantitative analyses, which may range from simple tabulations of relevant data to complicated econometrics. In *Oracle*, for example, one of the government's economic experts, Kenneth Elzinga, reviewed Oracle's discount approval forms and simply counted the number of times particular firms appeared on these forms, using that information to identify the participants in the relevant market.⁵⁶ In contrast, another government expert, James McAfee, presented a full merger simulation,⁵⁷ an advanced form of econometrics discussed below. Finally, the economic experts on each side critique the other side's experts, hoping to sow doubts about their credibility and undermine their specific positions.

Economic experts play a central role in merger litigation and judges usually (but not always) pay close attention to their testimony. In *Whole Foods*, all three appellate opinions refer repeatedly to the

⁵⁴ Although the parties may also present other experts—accountants, management consultants, retired industry executives—they usually assign the capstone role to economists.

⁵⁵ See, e.g., *Oracle*, 331 F. Supp. 2d at 1145 (noting that one of the government's experts had evaluated the implications of four other categories of evidence for market definition).

⁵⁶ See *id.* at 1145–46.

⁵⁷ See *id.* at 1169–70.

views of the economists who appeared in the case.⁵⁸ In *Oracle*, Judge Walker summarized and evaluated the testimony of each economic expert.⁵⁹ In *Staples*, however, Judge Hogan never mentioned any of the economic experts.⁶⁰ As all three cases indicate, moreover, that the testimony of economists does not typically produce an objective answer for the judge. Instead, both sides present economic experts, and on most issues, they reach opposite conclusions. After all, each side's experts are advocating a different scenario of the future, attempting to persuade the court that theirs is the more accurate prediction.

6. MERGER SIMULATIONS In the last fifteen years, economists have developed a technique that may eventually diminish the battle of experts. As currently practiced, this technique, called merger simulation, proceeds in two steps. First, the economist models the premerger equilibrium. That is, she develops a set of equations, using a theoretical model of competitive interaction that fits the firms and products in question, and realistic empirical estimates of the parameters of the model, and shows that these equations accurately replicate (within a reasonable level of tolerance) the prices and quantities that prevail premerger.⁶¹ In step two, the economist alters one key feature of the model: she assumes that the merging firms are no longer independently owned but instead set prices and quantities jointly. She then determines new equilibrium prices and quantities. The change between the original equilibrium and the new equilibrium is the simulated impact of the merger.⁶²

⁵⁸ See generally *FTC v. Whole Foods Mkt., Inc.*, 548 F.3d 1028, 1032 (D.C. Cir. 2008), *id.* at 1041 (Tatel, J., concurring), & *id.* at 1051 (Kavanaugh, J., dissenting).

⁵⁹ See generally *Oracle*, 331 F. Supp. 2d at 1038.

⁶⁰ See generally *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1066 (D.D.C. 1997).

⁶¹ Most merger simulations use the Bertrand model of competition among sellers of differentiated products. Others employ an auction model, and some use the Cournot model.

⁶² See Heyer, *supra* note 7, at 123–24 (“Merger simulation is an attempt to predict the post-merger pricing equilibrium by taking the premerger equilibrium, fitting it to an oligopoly model of how firms compete with one another, and generating the equilibrium that would be produced by that oligopoly model following the proposed merger.”); Luke M. Froeb & Gregory J. Werden, *An Introduction to the Symposium on the Use of Simulation in Applied Industrial*

Merger simulation, moreover, can be expanded to encompass variables other than price. Although it is employed almost exclusively now to forecast the price and quantity effects of a merger, it can be enlarged to predict the impact of a merger on product variety or other dimensions of consumer choice.⁶³ In addition, if there are enough data, merger simulation can predict the impact of a merger without first defining a relevant market.⁶⁴ Indeed, merger simulation can itself establish the relevant market. If a simulation were to show that a merger would result in a significant price increase on the merging firms' products, but not on other products, then the simulation itself would demonstrate that the merging firms' products constitute the relevant market.⁶⁵

Despite its attractive features, merger simulation is still in its adolescence. Although economists have been working on the approach for over a decade and a half, and the enforcement agencies now use it

Organization, 7 INT'L J. ECON. BUS. 133, 134 (2000) ("Merger simulation uses a standard oligopoly model calibrated to observed prices and quantities to predict the effects of a merger on the prices and quantities of the merging firms and their rivals."). See also Oliver Budzinski & Isabel Ruhmer, *Merger Simulation in Competition Policy: A Survey*, available at <http://ssrn.com/abstract=1138682>; Roy J. Epstein & Daniel L. Rubinfeld, *Merger Simulation: A Simplified Approach with New Applications*, 69 ANTITRUST L.J. 883 (2001).

⁶³ See Michaela Draganska, Michael J. Mazzeo & Katja Seim, *Addressing Endogenous Product Choice in an Empirical Analysis of Merger Effects*, available at http://www.kellogg.northwestern.edu/faculty/mazzeo/htm/dms_mergers.pdf.

⁶⁴ See *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1122 (N.D. Cal. 2004) ("Merger simulation models may . . . eliminate the need to, or lessen the impact of, the arbitrariness inherent in defining the relevant market."); HORIZONTAL MERGER GUIDELINES, *supra* note 2, § 6.1 ("merger simulation methods need not rely on market definition"); David A. Argue & Richard T. Shin, *An Innovative Approach to an Old Problem: Hospital Merger Simulation*, 24 ANTITRUST 49, 49 (2009) (the new approach to hospital merger simulation developed by FTC economists "does not require or depend upon market definition").

⁶⁵ See HORIZONTAL MERGER GUIDELINES, *supra* note 2, § 4.1.1 Ex. 5 (indicating that if a merger would result in a ten percent increase in the prices of products A and B, while the prices of other products remain constant, then products A and B would satisfy the hypothetical monopolist test for defining a relevant product market).

with some regularity to evaluate problematic mergers, the courts do not yet rely on it. In *Oracle*, perhaps the first case to consider a full-blown merger simulation,⁶⁶ Judge Walker rejected it because (in his view) it did not reflect market realities. To begin with, it relied on an auction model of competitive interaction: that is, it assumed that buyers licensed software from sellers through a process that resembled an English auction. In fact, according to the court, buyers procured software through intense, protracted negotiations. Moreover, the results of the simulation depended on the market shares of the relevant sellers. In other words, rather than eliminating the need for market definition, this particular simulation model required a predetermined market definition. Since Judge Walker had rejected the government's market definition, the simulation, which relied on this definition, had to be rejected as well.⁶⁷

As *Oracle* indicates, a merger simulation is only as valuable as the models and data—the assumptions and information—that are used to construct it. At present, there are often problems with one or both inputs.⁶⁸ In the future, however, the quality of both elements is likely

⁶⁶ See also Budzinski & Ruhmer, *supra* note 62, at 23 (“the Oracle/PeopleSoft case was the first to have a full-blown merger simulation model to be discussed in an U.S. courtroom”).

⁶⁷ See *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1169–72 (N.D. Cal. 2004). In a more recent case, an economic expert presented three simulations in support of the FTC's unilateral effects theories, and the court refused to accept any of them. Judge Collyer held that the expert had not obtained enough data—his sample sizes were too small—to provide reliable estimates of key variables in his models (diversion ratios and preference rankings). See *FTC v. CCC Holdings Inc.*, 605 F. Supp. 2d 26, 68–72 (D.D.C. 2009).

⁶⁸ See Budzinski & Ruhmer, *supra* note 62, at 25 (“Comprehensive and precise data is required in order to calibrate [merger simulation models] so that reliable results can be derived. In many markets, such data is simply not available.”) & *id.* (“[T]he quality of the results depends on how adequate (advanced!) Bertrand and Cournot models describe real market competition. This might impose some limitations if neither class of models suffices to match a given case as real-world competition is a complex and multifaceted phenomenon whose features reach beyond available advanced oligopoly models.”).

In addition, merger simulation can be costly. See *id.* at 29 (“‘direct’ costs like costs of data collection, payment for expertise, computer hours, manpower, etc. as well as costs in terms of a potential extension of the duration of

to improve as agencies and courts gain experience with simulations. Economists will continue to develop better models, and as they do, and the predictive power of merger simulation grows, the incentive to collect more and better data will increase. Moreover, as the models improve, they are likely to incorporate more variables of interest—product choices, barriers to entry, service quality—not just prices and quantities.⁶⁹ In short, as merger simulation becomes a more comprehensive and more accurate device, it may become our best single tool for predicting the competitive impact of a merger. It is not clear, however, that it will ever eliminate the need to obtain the perspectives and predictions of those who know the industry—company executives, customers, and suppliers—because they are likely to be aware of nuances in the industry’s current state and future direction that economic models cannot easily incorporate.

B. Likelihood of entry

Evaluating the likelihood of entry can be as important as market definition: a merged firm could not impose a significant and sustained price increase on its customers if they would promptly turn to a new entrant. But despite its obvious significance, courts have tended to neglect the entry issue, partly because determining the likelihood of new entry is often more difficult than market definition and

proceedings and possibly a reduction in legal certainty”). And to date, the efforts to validate the predictive power of merger simulation have been few and only partially successful. See Orley Ashenfelter & Daniel Hosken, *The Effect of Mergers on Consumer Prices: Evidence from Five Selected Case Studies* (NBER Working Paper 13859, 2008), available at <http://www.nber.org/papers/w13859> (“there is little direct evidence on how successful these models are in predicting price effects”); Dennis W. Carlton & Mark Israel, *Will the New Guidelines Clarify or Obscure Antitrust Policy?*, ANTITRUST SOURCE, Oct. 2010, at 4 (“there is only weak empirical evidence establishing the usefulness of merger simulation as a tool to predict anticompetitive mergers”).

⁶⁹ See Budzinski & Ruhmer, *supra* note 62, at 26 (at present, many “non-price elements of competition—like e.g. barriers to entry and exit, buyer power, brand, promotion and placement effects, shelf space competition, strategy effects on/of market participants, etc.—can hardly be included in [a merger simulation] since the available oligopoly and auction models do not capture these dimensions of competition”).

partly because precedent allows them to do so. No court in recent years has been reversed for failing to perform an adequate analysis of the entry issue.⁷⁰

1. SHORTCOMINGS IN JUDICIAL ANALYSIS Richard Zerbe and I have reviewed every litigated federal merger decision since April 1992, when the entry section of the Horizontal Merger Guidelines (the Guidelines) was greatly enlarged. This review uncovered widespread shortcomings in judicial analysis of the entry issue.⁷¹ For example, only one of the thirty-five decisions we examined analyzed entry by addressing each of the criteria laid out in the Guidelines—timeliness, likelihood, and sufficiency. Moreover, in analyzing the likelihood of entry, the courts rarely asked whether entry would be profitable—the test in the Guidelines—but asked instead whether the relevant market had entry barriers.

Only one of the thirty-five decisions actually defined an entry barrier. The rest seemed to view an entry barrier as any obstacle that reduces the speed or likelihood or impact of entry. While that notion has merit—it meshes with the Guidelines' approach to entry and one of the leading economic definitions of an entry barrier—it is not adequate by itself to resolve the entry issue. Without establishing the magnitude of such an obstacle, it is not possible to determine whether it would impede entry so much that entry would be unlikely or untimely or insufficient. Large capital requirements, for example, are an entry barrier under the courts' approach, because they reduce the number of potential entrants and thus the overall probability of entry. They need not render entry unlikely, however, for a large firm could find it profitable to enter despite the amount of capital required.

⁷⁰ See John B. Kirkwood & Richard O. Zerbe, Jr., *The Path to Profitability: Reinvigorating the Neglected Phase of Merger Analysis*, 17 GEO. MASON L. REV. 39, 43 (2009). As this article makes clear, the relevant issue is not the likelihood of any entry at all, no matter how small the entrant or how slow the process, but the likelihood of prompt and adequate entry—entry that will drive prices back to the premerger level in a reasonably short period of time. As a result, when I refer to the likelihood of entry, I mean the likelihood of timely and sufficient entry.

⁷¹ See generally Kirkwood & Zerbe, *supra* note 70.

This lack of rigor in appraising the entry issue often showed up in other ways as well. The courts almost never analyzed the entry issue in depth. To the contrary, their discussions of entry were usually brief, typically occupying a page or a paragraph—or just a few sentences—in a much longer opinion. In addition, several courts overlooked or completely misunderstood one of the Guidelines criteria. A few decisions, for example, concluded that entry was unlikely simply because it was costly—without asking whether it was profitable to incur those costs. Indeed, the courts rarely focused on the profitability of entry, the fundamental determinant of its likelihood in economic theory and under the Guidelines. None of the thirty-five decisions determined how much business an entrant would need to be profitable, and only a small number assessed the likely reactions of customers and established firms, even though those reactions are critical to an entrant's success. Finally, almost no case asked whether the prospects of new entry would be reduced if the merger created the efficiencies the merging parties claimed it would.

Despite these shortcomings, no court at either the trial or the appellate level was ever reversed on the entry issue. As a result, judges have generally become comfortable with a quick look at entry conditions, in which barriers are likely to be identified but their height not determined, and the economic questions necessary to determine the likelihood of entry are not raised or resolved. Of course, there have been exceptions: the discussions of entry in *CCC Holdings*⁷² and *Chicago Bridge*⁷³ are extensive and thoughtful, and Judge Hogan's opinions in *Staples*⁷⁴ and *Swedish Match*⁷⁵ are quite sophisticated. But judicial analysis of entry has not generally displayed the thoroughness or rigor of judicial analysis of product market definition.

This lack of precision does not appear to have led to major competitive problems. Since April 1992, no court has allowed an otherwise anticompetitive merger on the ground that entry is easy.⁷⁶ During this period, therefore, there were no false negatives attributable to judicial

⁷² *FTC v. CCC Holdings Inc.*, 605 F. Supp. 2d 26, 46–60 (D.D.C. 2009).

⁷³ *Chi. Bridge & Iron Co. v. FTC*, 534 F.3d 410, 427–39 (5th Cir. 2008).

⁷⁴ *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1086–88 (D.D.C. 1997).

⁷⁵ *FTC v. Swedish Match*, 131 F. Supp. 2d 151, 170–71 (D.D.C. 1997).

⁷⁶ *See Kirkwood & Zerbe, supra* note 70, at 60.

analysis of entry—harmful mergers allowed because of a court’s mistaken belief that new entry would prevent a competitive problem. There may have been false positives—procompetitive mergers blocked because of an erroneous belief that the merger was harmful and that new entry would not occur. But the retrospectives discussed below find that the great majority of marginal mergers during this period resulted in price increases, not price declines, which suggests that false positives were rare. In short, it does not appear that the flaws in judicial analysis of entry have resulted in substantial competitive harm. This does not mean, of course, that the courts’ current approach is ideal. It may have resulted in errors in some cases, it undermines confidence in judicial decision making, and it can be improved through modest and practical reforms in the litigation process.

2. PROPOSED REFORMS Professor Zerbe and I have proposed a new approach to litigating the entry issue. If defendants contend that new entry would solve the merger’s competitive problems, they would have to identify a “path to profitability”—a business strategy that would likely enable a new entrant (1) to attain enough sales to make its investment in the market profitable and (2) to grow at a sufficient rate that its output would drive prices and other terms of sale back to the premerger level in a reasonably short period of time. If defendants satisfy this burden—that is, if they introduce substantial evidence of a path to profitability—then the government could nevertheless prevail by demonstrating that the path is not viable—that barriers to entering the relevant market are so high that new entry would not in fact satisfy all three of the Guidelines’ criteria.⁷⁷ This two-step approach would focus the parties and the courts on the key likelihood issue—the profitability of entry—without complicating the analysis so much that it becomes unworkable.

As this synopsis indicates, we assign great weight to profitability. Like the Guidelines⁷⁸ and the Areeda-Hovenkamp treatise,⁷⁹ we treat

⁷⁷ In accord with *United States v. Baker Hughes*, 908 F.2d 981 (D.C. Cir. 1990), the government would retain the ultimate burden of proof on the entry issue. *See id.* at 989–92.

⁷⁸ HORIZONTAL MERGER GUIDELINES, *supra* note 2, § 3.3 (“An entry alternative is likely if it would be profitable.”).

⁷⁹ AREEDA & HOVENKAMP, *supra* note 13, ¶ 941g, at 236 (3d ed. 2009) (“Obviously, entry is not likely to occur unless it is profitable to the entrant.”).

entry as an investment decision and assume that firms will make this decision based on its profitability. Some proponents of behavioral economics, however, have questioned this assumption.

3. BEHAVIORALIST CHALLENGE In a recent article on the implications of behavioral economics for antitrust, Amanda Reeves and Maurice Stucke assert that firms do not always enter markets when entry would be profitable. They state:

At other times, entry does not occur when it is economically rational. Thus companies can maintain supracompetitive pricing in markets with low entry barriers. Between 1988 and 1996, the [Department of Justice] criminally prosecuted cartels in dozens of industries that, on the surface, appear to have moderate or low entry barriers, including turtles, chain link fences, and bicycle retailers. Other recent cartels involved college textbooks, packaged ice, scrap metal, bid rigging at public real estate foreclosure auctions, and retail gasoline and diesel fuel.⁸⁰

In these instances, price fixing apparently occurred despite the presence of low entry barriers, a phenomenon that seems inconsistent with the profitability assumption. Do these cases require that we jettison—or substantially modify—that assumption?

That would be premature, because there are a number of possible explanations for these episodes that are consistent with the profitability assumption. Indeed, until these explanations are ruled out, it is fair to say, as Gregory Werden, Luke Froeb and Mikhael Shor do, that behavioral research has not actually shown that “entry fails to occur when a profitability test indicates that it should.”⁸¹ On the other hand, it is not clear that these explanations account for all of the cases Reeves and Stucke cite. To the contrary, it may be true that in some of these cases, entry did not occur even though it would have been profitable. If so, it may be necessary to recognize some exceptions to the profitability assumption. The issue cannot be resolved without more information, however, because none of the cases has been studied in

⁸⁰ Amanda P. Reeves & Maurice E. Stucke, *Behavioral Antitrust*, 86 IND. L.J. 1527, 1558 (2011) (footnotes omitted). See also Maurice E. Stucke, *Behavioral Economists at the Gate: Antitrust in the Twenty-First Century*, 38 LOY. U. CHI. L.J. 513, 565–66 (2007) (making the same point).

⁸¹ Gregory J. Werden, Luke M. Froeb & Mikhael Shor, *Behavioral Antitrust and Merger Control* 5 (Vanderbilt Law & Econ. Research Paper No. 10-14, 2010), available at <http://www.ssrn.com/abstract=1612282>.

sufficient depth to determine whether entry ever occurred, why it did not occur sooner, or why it did not occur at all.⁸²

There are at least four possible explanations for these episodes that are consistent with the profitability assumption. First, entry may have occurred in these cases as soon as potential entrants determined that there had been an anticompetitive price increase in the relevant market and set up the necessary operations. Although such entry would not have prevented the price fixing altogether—and thus would not have deprived the Justice Department of a basis for a criminal prosecution—it could have forced prices back to the competitive level in a relatively short period of time. As Areeda and Hovenkamp note, “cartels can often be formed on a moment’s notice and earn significant profits even if entry in a few months’ time will undermine them.”⁸³ Second, the cartels may have been largely or completely ineffective—that is, they did not raise prices a significant amount or unraveled rapidly. If so, it would not have made sense for a firm to enter the market; the profit opportunities were too small, or would have disappeared too rapidly, to warrant the investment. Third, potential entrants may not have been able to detect the price increases or determine they were anticompetitive (i.e., not justified by higher costs). As Reeves and Stucke note, the information necessary to decide whether entry is warranted may be unavailable or expensive to obtain.⁸⁴ Fourth, a close examination of these cases might reveal that in some of them, the markets actually had substantial barriers to entry, such as scale economies that were significant in relation to the size of the market. Because of these possibilities, we cannot conclude, without more information, that potential entrants failed to respond in a rational way to the information and opportunities available to them.

At the same time, it is not possible to be confident that these explanations account for every case that Reeves and Stucke identify. In some

⁸² See Stucke, *supra* note 80, at 578 (“there have not been any extensive studies of the characteristics of these industries”).

⁸³ AREEDA & HOVENKAMP, *supra* note 13, ¶ 941a, at 210.

⁸⁴ See Reeves & Stucke, *supra* note 80, at 1559 (“The behavioral finance literature also suggests that sparse entry may result from the fact that the information needed to make a rational decision about entry can be costly to acquire, process, and verify.”) (footnote omitted).

of them, according to Professor Stucke, the Justice Department alleged that the price-fixing conspiracy lasted for a number of years, and it appears that both sunk costs and entry barriers were quite low.⁸⁵ In such cases, the Justice Department may well have been quicker at finding and challenging the cartels than potential entrants were in identifying the profit opportunity and seizing it. Given these instances, it is difficult to conclude that the profitability assumption is always valid.

Before a behavioralist exception is created, however, we must confront another problem with the behavioralist critique: why is it that potential entrants do not take advantage of profitable entry opportunities? Why do they leave money on the table? The principal explanation Reeves and Stucke offer is that potential entrants may be excessively risk averse.⁸⁶ But this explanation seems inconsistent with another phenomenon behavioralist research has uncovered—excessive entry. After a detailed review of the literature, Avishalom Tor concluded that a great deal of small-scale entry takes place even though, by any objective measure, the entrant's expected profits are negative.⁸⁷ An experimental study published in the *American Economic Review* found the same result.⁸⁸ Reeves and Stucke attribute this phenomenon to a variety of psychological problems, including "optimism bias" and "wishful thinking"—the tendency to overestimate the likelihood of your own success and underestimate the chance of your failure.⁸⁹ To be

⁸⁵ In correspondence with me, Professor Stucke pointed to the scrap metal case and the packaged ice case, in both of which the conspiracy allegedly continued for approximately six years and the business was simple to set up and operate.

⁸⁶ See Reeves & Stucke, *supra* note 80, at 1559 ("individuals do not react to risk and uncertainty as a rational profit maximizer would").

⁸⁷ See Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, and Legal Policy*, 101 MICH. L. REV. 482, 490 (2002) ("The empirical evidence strongly suggests that negative net present value entry is commonplace.").

⁸⁸ See Colin Camerer & Dan Lovallo, *Overconfidence and Excess Entry: An Experimental Approach*, 79 AM. ECON. REV. 301 (1999).

⁸⁹ Reeves & Stucke, *supra* note 80, at 1557–58. See also Werden, Froeb & Shor, *supra* note 81, at 10 ("Individuals tend to overestimate both their abilities to perform skilled tasks and the likelihood that things will work out well. Overconfidence is one of the psychological biases documented in the business world.").

sure, excessive entry is not an important phenomenon for antitrust policy. Considerable evidence indicates that excessive entry is usually “insufficient” entry: irrational entrants are typically small, fail quickly, and have little or no impact on market outcomes.⁹⁰ But excessive entry does cast doubt on the notion that entrants are unduly risk averse.

Reeves and Stucke recognize the conflict and attempt to resolve it by suggesting that potential entrants may be excessively optimistic in some cases and excessively pessimistic in others. Citing the results of a behavioral experiment, the authors propose that entrants may be excessively optimistic when the task is easy and excessively pessimistic when the task is difficult.⁹¹ But this solution runs squarely into a key characteristic of the price-fixing cases mentioned earlier: in these cases, entry barriers appeared to be modest. Yet if barriers appeared modest, then entry would have appeared easy, not difficult, and potential entrants should have been overconfident, not excessively risk averse.

Despite this problem with the underlying explanation, I am reluctant, given the duration of some of the conspiracies cited, to dismiss the behavioralist critique altogether. Instead, I agree with Reeves and Stucke that we need more studies of past antitrust cases, both collusion cases and merger cases, in order to determine the strength and scope of the profitability assumption.⁹² Until such studies produce a clearer explanation, I would suggest that courts adopt

⁹⁰ See Kirkwood & Zerbe, *supra* note 70, at 50 n.60 (discussing the evidence); see also Werden, Froeb & Shor, *supra* note 81, at 5 (“proponents of behavioral antitrust argue that non-profit-maximizing entry almost certainly is unsuccessful”).

⁹¹ See Reeves & Stucke, *supra* note 80, at 1559.

⁹² Reeves and Stucke propose that the federal antitrust agencies conduct systematic reviews of both merger cases and cartel prosecutions. See Reeves & Stucke, *supra* note 80, at 1574. With respect to merger cases, they state that “the federal antitrust agencies should conduct a post-merger analysis of any merger subject to an extended Second Request review in which the agency: (i) took no enforcement action; (ii) permitted the merger in part to be consummated pursuant to a consent decree; or (iii) challenged the merger in court, but lost. The antitrust agency, two to five years after the merger was consummated, should examine the state of competition in that industry, including pricing levels and non-price components” *Id.* To reduce the burden of these reviews, Reeves and Stucke suggest that a detailed analysis of any case

a rebuttable presumption. Specifically, they should presume that entry decisions are dictated by their expected profitability, but allow the government to rebut that presumption, if it can, in an individual case.⁹³ Unfortunately, the Guidelines preclude this approach. They retain the

should not be conducted unless a “quick-look review” indicated that competition had been significantly diminished.

While this proposal would increase the number of merger retrospectives, and thus would have significant benefits, it may be overly ambitious, at least initially. It would require the agencies to conduct dozens of quick-look reviews each year and possibly a substantial number of in-depth retrospectives as well. It may be better for the agencies to begin with a less expensive pilot project, in which they select a sample of merger cases for a quick-look review and, if warranted, a full retrospective. If this effort proves cost-effective, the agencies could expand it.

In a communication with me and others, Professor Roger Noll observed: “The idea that the antitrust agencies should do more ex post review has been around a long time, but with some occasional exceptions it never happens because the incentive for top agency officials is to use their scarce resources on today’s issue, not yesterday’s. I suspect that systematic, regularized ex post review can happen only in two ways: (1) Congress mandates it and provides funds that cannot be used in another way, or (2) another entity does it (maybe the Office of Information and Regulatory Affairs, or maybe a non-profit financed by a foundation).” If Professor Noll is right, and a systematic program of retrospectives will not take place unless Congress or another entity funds it, then it is particularly desirable that the proposed program not appear to be overly expensive. Former FTC Chairman William E. Kovacic has repeatedly urged competition agencies to conduct regular retrospectives. See William E. Kovacic, *Assessing the Quality of Competition Policy: The Case of Horizontal Merger Enforcement*, 5 COMPETITION POL’Y INT’L 129, 145 (2009) (“[C]ompetition authorities [should] expend resources devoted to performance measurement. Agencies can ensure that, in every budget cycle, there are outlays for evaluation.”); William E. Kovacic, *Rating the Competition Agencies: What Constitutes Good Performance?* 16 GEO. MASON L. REV. 903, 924 (2009) (“Measuring program effectiveness is not an easy undertaking, but to say that it is difficult is not a good reason to ask outsiders to accept effectiveness as a matter of faith.”); William E. Kovacic, *Evaluating Antitrust Experiments: Using Ex Post Assessments of Government Enforcement Decisions to Inform Competition Policy*, 9 GEO. MASON L. REV. 843, 861 (2001) (“Ex post assessments of public enforcement measures provide a vital tool for ensuring that government competition programs achieve desired ends.”).

⁹³ See Kirkwood & Zerbe, *supra* note 70, at 47 n.44.

profitability assumption,⁹⁴ and thus make it extremely unlikely that the government would ever take a position inconsistent with it.

In Part IV, I assess the predictive power of merger analysis from a different perspective. Instead of evaluating the strength of the analytical process the courts use, I examine the results of mergers that the government and the courts did not block.

IV. MERGER RETROSPECTIVES

If merger control were perfect, the only transactions that would occur would be those likely to enhance competition and benefit consumers, suppliers, or both. If merger control were less than perfect, but quite good overall, some mergers would harm competition but a greater number would improve the competitive process. Notably, studies of marginal mergers—mergers that would have been stopped had the government and the courts been somewhat more aggressive—do not find either result. Marginal mergers are not uniformly procompetitive, nor are more of them procompetitive than anticompetitive. Instead, studies of past mergers—merger retrospectives—have found that the vast majority of marginal mergers led to price increases.

A. *The studies and their results*

In the last three decades, there have been at least twenty-eight studies of consummated mergers, and those studies have examined at least sixty mergers.⁹⁵ Unlike econometric studies of the relationship between,

⁹⁴ See HORIZONTAL MERGER GUIDELINES, *supra* note 2, § 9.2 (“Entry is likely if it would be profitable.”).

⁹⁵ The following articles identify twenty-five merger retrospective studies, counting the study of five consumer product mergers that Ashenfelter & Hosken themselves conducted: Graeme Hunter, Gregory K. Leonard & G. Steven Olley, *Merger Retrospective Studies: A Review*, 23 ANTITRUST 34 (2008); Paul A. Pautler, *Evidence on Mergers and Acquisitions*, 48 ANTITRUST BULL. 119 (2003); Ashenfelter & Hosken, *supra* note 68. In addition, economists at the FTC have recently conducted three retrospective analyses of hospital mergers. See Deborah Haas-Wilson & Christopher Garmon, *Two Hospital Mergers on Chicago’s North Shore* (FTC Bureau of Econ. Working Paper No. 294, 2009), available at <http://www.ftc.gov/be/workpapers/wp294.pdf>; Aileen Thompson, *The Effect of Hospital Mergers on Inpatient Prices: A Case Study of the New Hanover-Cape Fear Transaction* (FTC Bureau of Econ. Working Paper No. 295,

say, market concentration and firm profitability, which look for patterns across markets, these studies examine individual mergers and attempt to determine the impact of those particular mergers on the prices charged by the merging firms.⁹⁶ Because answering that question still requires controlling for other factors that may have affected prices, the retrospectives, like the profit-concentration studies, normally employ regression analysis, but they are case studies, not multimarket studies.

The vast majority of retrospectives find that the transaction they examine—or where they investigate multiple mergers, half or more of the transactions they examine—led to a price increase. Indeed, approximately eighty percent of the mergers were found to have produced higher prices.⁹⁷ Most of the time, the price increases were not dramatic: they usually ranged from two percent to ten percent.⁹⁸ At the middle and upper levels of this range, however, these increases were surely significant,⁹⁹ and if the volume of sales was large, even a

2009), available at <http://www.ftc.gov/be/workpapers/wp295.pdf>; Steven Tenn, *The Price Effects of Hospital Mergers: A Case Study of the Sutter-Summit Transaction* (FTC Bureau of Econ. Working Paper No. 293, 2008), available at <http://www.ftc.gov/be/workpapers/wp293.pdf>. These twenty-eight studies examine at least sixty mergers. The number is imprecise because the articles identify some merger retrospective studies without indicating whether the studies examined a single transaction or several.

⁹⁶ Although some of these studies also examine rivals' prices, few attempt to evaluate the impact on nonprice variables like product choice.

⁹⁷ More precisely, the twenty-eight merger retrospectives identified in the articles cited above analyzed the effects of at least sixty-five mergers, and of those sixty-five, price increases were found in fifty-two (eighty percent).

⁹⁸ See generally Hunter, Leonard & Olley, *supra* note 95; Pautler, *supra* note 95. For examples, see Ashenfelter & Hosken, *supra* note 68, at 35 ("In four of the five mergers we investigated, prices appeared to increase a small but significant amount, typically between 3% and 7%."); Hunter, Leonard & Olley, *supra* note 95, at 40 ("McCabe analyzed the effects of seven mergers involving publishers of biomedical journals that occurred in the 1990s . . . McCabe found that the mergers led to price increases of 2 percent to 10 percent.") (citing Mark J. McCabe, *Journal Pricing and Mergers: A Portfolio Approach*, 92 AM. ECON. REV. 259 (2002)).

⁹⁹ See HORIZONTAL MERGER GUIDELINES, *supra* note 2, § 4.1.2 (indicating that the enforcement agencies usually regard a price increase of five percent as significant).

two percent increase could have a significant adverse effect on customers.¹⁰⁰ Moreover, in some instances the price increases were striking. Michael Vita and Seth Sacher concluded that a hospital acquisition in Santa Cruz allowed the acquiring hospital to raise prices approximately twenty-five percent, an increase that could not be explained by rising costs.¹⁰¹ Similarly, Deborah Haas-Wilson and Christopher Garmon found that Evanston Northwestern Healthcare's purchase of Highland Park Hospital permitted the combined institution to increase its net revenues per case by almost fifty percent between 1999 and 2002.¹⁰² And Craig Peters estimated that the Continental-People Express merger was followed by a price increase (relative to an industry benchmark) of more than twenty-nine percent.¹⁰³

Approximately one-fifth of the transactions, according to the studies, did not result in any significant price increases. In some cases, the studies did not find any material change in prices; in others, the reduction was small but significant¹⁰⁴; and in a few, the decline was substantial. Prices apparently dropped twenty-three percent following the merger of Hawaii's two cement producers,¹⁰⁵ and the combina-

¹⁰⁰ See Ashenfelter & Hosken, *supra* note 68, at 4 (noting that where the amount of commerce is large, "the implied transfer from consumers to manufacturers is substantial").

¹⁰¹ Hunter, Leonard & Olley, *supra* note 95, at 39–40 (summarizing Michael G. Vita & Seth Sacher, *The Competitive Effects of Not-For-Profit Hospital Mergers: A Case Study*, 49 J. INDUS. ECON. 63 (2001)).

¹⁰² See Haas-Wilson & Garmon, *supra* note 95.

¹⁰³ See Craig Peters, *Evaluating the Performance of Merger Simulation: Evidence from the U.S. Airline Industry*, 49 J.L. & ECON. 627, 641–42 (2006).

¹⁰⁴ See, e.g., Hunter, Leonard & Olley, *supra* note 95, at 38 (describing the Justice Department's informal study of the Whirlpool-Maytag merger, which concluded that prices had fallen a limited but significant amount (relative to what they would have been without the merger) because "the wholesale price of washing machines . . . has fallen slightly since the merger [while] the cost of inputs used in the production of washing machines has increased significantly") (citing Thomas O. Barnett, *Current Issues in Merger Enforcement: Thoughts on Theory, Litigation Practice, and Retrospectives* (June 26, 2008), available at <http://www.usdoj.gov/atr/public/speeches/234537.pdf>).

¹⁰⁵ See Pautler, *supra* note 95, at 180 (citing Laurence Schumann, Robert P. Rogers & James D. Reitzes, *Case Studies of the Price Effects of Horizontal Mergers* (FTC Bureau of Econ., 1992)).

tion of TWA and Ozark eventually resulted in fare reductions of fifteen percent.¹⁰⁶

As noted, though, the great majority of transactions examined led to price increases, a pattern that other authors have observed. After reviewing fourteen studies, Orley Ashenfelter and Daniel Hosken state: "All but one of these studies finds some evidence of price increases following the mergers they study."¹⁰⁷ Their own study of five consumer products mergers reached a similar conclusion—small but significant price increases in four out of the five transactions.¹⁰⁸ In another recent literature review, Hunter, Leonard and Olley declare: "[T]he majority of studies that analyze price effects have found post-merger price increases."¹⁰⁹

B. Implications

This pattern has two broad implications. First, the fact that the vast majority of the price changes found were limited in size, rather than dramatic, suggests that merger analysis is not severely off target. If the predictive power of merger analysis was poor—if the courts and enforcement agencies could not make reasonably reliable estimates of the likely effects of proposed mergers—we would expect a greater range of outcomes. As Ashenfelter and Hosken observe, the absence of such sharp variation tends to counter the view that merger control in the United States needs to be adjusted substantially:

[S]ome advocates of less intervention may be surprised to learn that our best estimate of the price effects of the marginal merger are positive, not negative as would be the case if the marginal merger were producing large benefits to consumers through the efficiency of the enlarged firm. Likewise, . . . some advocates of more intervention may be surprised to learn that the marginal merger is not producing huge anticompetitive price increases either.¹¹⁰

¹⁰⁶ See *id.* at 171 (citing Steven A. Morrison, *Airline Mergers: A Longer View*, 30 J. TRANSP. ECON. & POL'Y 237 (1996)).

¹⁰⁷ Ashenfelter & Hosken, *supra* note 68, at 9.

¹⁰⁸ *Id.* at 35.

¹⁰⁹ Hunter, Leonard & Olley, *supra* note 95, at 34.

¹¹⁰ Ashenfelter & Hosken, *supra* note 68, at 35. The absence of large price increases or large price reductions in the retrospectives does not prove that merger analysis is reasonably accurate. As I explain below, the retrospectives

At the same time, the large proportion of price increases found in the merger retrospectives suggests that courts and enforcement agencies have not been sufficiently aggressive in blocking mergers.

The retrospectives are not a random sample of all marginal mergers,¹¹¹ however, and would not justify a simple, across-the-board increase in merger enforcement. To the contrary, most of them examine transactions in just four industries: airlines, hospitals, banking, and petroleum.¹¹² Moreover, most retrospectives take a relatively short term perspective, assessing the impact of the merger in the first few years after it occurred.¹¹³ They do not, as Ashenfelter and Hosken put it, “measure the effects of the mergers on prices in the longer run when the effects of some efficiency in the operation of the merged firms may emerge.”¹¹⁴ Finally, virtually all of them look exclusively at the effect of the merger on prices. They do not estimate its impact on nonprice dimensions of competition such as service quality or product choice.¹¹⁵ Most merger retrospectives, in short, focus on a few industries and examine the short term price consequences of a trans-

are not a random sample of all mergers or even of all marginal mergers: they are limited in number, they focus on only a few industries, they concentrate on short-term price effects, and they mostly find price increases rather than price reductions. Still, they examine at least sixty-five mergers and find dramatic price changes only in a minority of cases, which is a positive sign.

¹¹¹ Hunter, Leonard & Olley, *supra* note 95, at 40 (“the mergers that have been analyzed cannot in any sense be claimed to represent a random sample of all mergers or even ‘marginal’ mergers”).

¹¹² See, e.g., Ashenfelter & Hosken, *supra* note 68, at 9 (“Most existing studies are in three historically regulated industries where pricing data are publicly available: airlines, banking, and hospitals The other major industry where the price effects of mergers have been examined is the petroleum industry.”).

¹¹³ See, e.g., Haas-Wilson & Garmon, *supra* note 95 (evaluating price changes within three-year period); Tenn, *supra* note 95 (estimating price impact within two-year period); Peters, *supra* note 103 (observing price changes in year after merger).

¹¹⁴ Ashenfelter & Hosken, *supra* note 68, at 4.

¹¹⁵ See, e.g., *id.* (“We do not attempt to measure the benefits or costs to consumers of changes in product selection.”).

action, not its longer-run impact on the entire array of competitive offerings.

These limitations do not mean, however, that courts and enforcement agencies should disregard the retrospectives. The total number of studies is substantial (at least twenty-eight) and the number of mergers examined is even larger (over sixty). In addition, although most of the studies focus on just four industries, there are a significant number that address other industries (seven), those studies examine a substantial number of mergers (twenty), and a large percentage (seventy percent) of these transactions were found to cause price increases.¹¹⁶ And even though most retrospectives do not evaluate long run effects, those that do usually uncover higher prices, not price reductions, over the longer term.¹¹⁷ Finally, while only two studies looked at nonprice effects, both found either no benefits or an adverse effect.¹¹⁸ In short, the retrospectives that range beyond the focus of the majority of studies find broadly similar results.

For these reasons, the retrospectives ought to play some role in the review of problematic mergers. That role should depend on the strength of the other evidence of competitive impact and the similarity of the merger in question to transactions previously exam-

¹¹⁶ See Ashenfelter & Hosken, *supra* note 68; Barnett, *supra* note 104; McCabe, *supra* note 98; Schumann, Rogers & Reitzes, *supra* note 105; John A. Karikari, Stephen M. Brown, & Mehrzad Hadji, *The Union Pacific/Southern Pacific Railroads Merger: Effect of Trackage Rights on Rates*, 22 J. REG. ECON. 271 (2002); Joon Je Park, Michael W. Babcock & Kenneth Lemke, *The Impact of Railroad Mergers on Grain Transportation Markets: A Kansas Case Study*, 35 TRANSP. RES. 269 (1999); David M. Barton & Roger Sherman, *The Price and Profit Effects of Horizontal Merger: A Case Study*, 33 J. INDUS. ECON. 165 (1984).

¹¹⁷ See, e.g., Vita & Sacher, *supra* note 101 (price increases found six years after the merger); Morrison, *supra* note 106 (eight years after the transactions occurred, higher prices found in two of three mergers).

¹¹⁸ See Pautler, *supra* note 95, at 167–68 (noting that one study found that both of the airline mergers examined led to service reductions) (citing Gregory J. Werden, Andrew S. Joskow & Richard L. Johnson, *The Effects of Mergers on Economic Performance: Two Case Studies from the Airline Industry*, 12 MANAGERIAL & DECISION ECON. 341 (1991)); Peters, *supra* note 103 (one airline merger resulted in a significant reduction in flight frequency; three others had no significant effect on the number of flight options).

ined. If the other evidence is close, if the merger is similar to transactions previously studied, and if those studies consistently found price increases, the retrospectives could tip the balance in favor of stopping the merger. As is typically the case with merger analysis, the specific facts matter: the power of the retrospectives would turn on the degree to which they are likely to predict the competitive effects of the merger, as opposed to the evidence collected by the government and the parties. In most instances, the evidence collected by the government and the parties is likely to furnish a more reliable basis for prediction than the retrospectives. But in some cases, the retrospectives may be sufficiently probative of probable effects that they should be given significant weight in the final analysis.

V. CONCLUSION

In this article, I appraised the predictive power of merger analysis in two ways. In part III, I examined the process courts use to resolve merger challenges and assessed its rigor and sophistication, looking at product market definition and the likelihood of entry. In the area of product market definition, the predictive power of merger analysis is reasonably strong: the courts employ a theoretically precise test, examine multiple categories of evidence, devote a great deal of attention to the issue, and generally reach a defensible outcome. Even here, however, the process remains complex and subjective; the evidence is almost always voluminous and in conflict, and there is no simple algorithm for weighing conflicting evidence.

Courts face the same evidentiary problems in resolving the likelihood of new entry, but here their analysis is distinctly weaker. Instead of working their way through the theoretically appropriate test—would new entry be profitable?—they commonly resort to the simpler question: Is the relevant market protected by entry barriers? Although that inquiry is relevant to the likelihood of entry, it is not dispositive unless the courts also measure the height of the barriers they identify. Without measuring the height of an obstacle, it is not possible to determine whether it would render new entry not just less likely but unlikely. Most courts, however, do not evaluate the height of the barriers they find—or address the profitability of new entry

directly—and thus do not resolve the likelihood issue in an economically sound way.

In part IV, I appraised the predictive power of merger analysis in a second way. I looked at the results of “marginal” mergers—mergers that would have been blocked had the government and courts been somewhat more aggressive. Measured in this way, merger analysis does not seem to be seriously off target: the merger retrospectives find that very few transactions led to either sharp price increases or major price reductions. At the same time, though, the retrospectives indicate that a large proportion of marginal mergers resulted in small but significant price increases. This striking pattern does not support a broad scale increase in merger enforcement, given the limitations of the retrospectives, but it does suggest that in appropriate cases, enforcement agencies and courts should be more willing to block mergers. Such cases would tend to be marked by two characteristics: the evidence collected by the government and the parties would not supply a clear prediction of the merger’s competitive effects, and the merger would closely parallel transactions that have been found to cause significant anticompetitive effects.

The predictive power of merger analysis is likely to grow in the future as the enforcement agencies and courts continue to refine their evaluation of proposed mergers. It is also likely to grow through the further development and application of three techniques discussed in this article: merger simulations, merger retrospectives, and the “path to profitability.”¹¹⁹ While these techniques are demanding, they hold out the greatest promise of enhancing the predictive power of merger analysis.

¹¹⁹ See Kirkwood & Zerbe, *supra* note 70.