The *Cellophane* Fallacy and the Justice Department's Guidelines for Horizontal Mergers

The Justice Department's Merger Guidelines, originally issued in 1982[1] but subsequently revised slightly and reissued in June, 1984,[2] have been heavily criticized, primarily because of the economic theories upon which they rely.[3] Regardless of whether the underlying theories are sound, however, the Guidelines sometimes contravene their stated policy of preventing mergers that create, enhance, or facilitate the exercise of market power.[4] They do this by discriminating in favor of mergers between firms already charging monopoly prices.[5]

This Note explains how the Guidelines discriminate in favor of such mergers, shows why such discrimination is inappropriate, and suggests a practical way to eliminate the problem. Part I provides background information on the Guidelines. It also explains how, by failing to employ the competitive price as the baseline for defining the relevant market, the

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1. U.S. Dep't of Justice, Merger Guidelines, 47 Fed. Reg. 28,493 (1982).

2. U.S. Dep't of Justice, Merger Guidelines, 49 Fed. Reg. 26,823 (1984) [hereinafter cited without cross-reference as 1984 Guidelines].

3. *See, e.g.*, Harris & Jorde, *Market Definition in the Merger Guidelines: Implications for Antitrust Enforcement*, 71 CALIF. L. REV. 464, 464–69, 476–86 (1983) (criticism of Guidelines' reliance upon assumptions of neoclassical price theory); Note, *An Economic Analysis of the 1982 Justice Department Guidelines for Horizontal Mergers*, 67 MINN. L. REV. 749, 774–76 (1983) (criticizing Guidelines' use of Herfindahl-Hirschman Index on ground that other measures of concentration may be better predictors of non-competitive performance); *id.* at 782–86 (criticizing belief implicit in Guidelines that firms merge primarily as a means of increasing efficiency); *see also Antitrust Practitioners React Favorably to New Merger Guidelines*, 42 ANTITRUST & TRADE REG. REP. (BNA) No. 1070, at 1315, 1316–17 (June 24, 1982) (statement by Professor F.M. Scherer, former director of the Federal Trade Commission's Bureau of Economics, that he was "just a little bit amused" by choice of Herfindahl-Hirschman Index to measure concentration, a choice he said was "like picking a sharp scalpel to do surgery on something you don't understand").

4. 1984 Guidelines § 1.

5. There are a number of circumstances in addition to actual monopoly which might permit a firm to charge monopoly or supra-competitive prices. A group of firms, for example, might engage in tacit or explicit collusion. Explicit collusion involves some overt agreement to fix prices, limit output, divide markets, or any combination of these. Tacit collusion involves no such overt agreement, but may have anti-competitive consequences just as serious as explicit collusion. One example of tacit collusion is "conscious parallelism," in which each firm in a market with only a few sellers "recognizes that aggressive actions such as price cutting will induce counteractions from rivals which, in the end, leave all members of the industry worse off." The firms in such a market, acting independently, may "exercise mutual restraint and prevent prices from falling to the competitive level." F. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 514 (2d ed. 1980). *See also* Interstate Circuit v. United States, 306 U.S. 208, 226–27 (1939) (holding that agreement may be inferred from consciously parallel action that is interdependent). Another example is "price leadership," in which firms tacitly agree to follow the lead of one firm, usually a "dominant firm," in setting prices. *See* F. SCHERER, *supra*, at 176–84; *see also id.* at 184–86 (discussing other examples). The analysis presented in this Note applies to mergers in any of these types of markets.

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Guidelines sometimes construe the relevant market too broadly and thereby commit a fallacy similar to that committed in the well-known *Cellophane* case.[6] Part II explains that when the Guidelines are applied to a merger between firms charging supra-competitive prices, this fallacy often leads the Justice Department to underestimate the potential anti-competitive consequences of the merger and thereby reduces the likelihood that the Department will challenge the merger. The Note uses mathematical formulas to illustrate the effects of the fallacy on the Guidelines' quantitative variables and to demonstrate the potential magnitudes of these effects. Part III explains why the competitive price is the appropriate baseline from which to define the relevant market, notwithstanding arguments by Richard Posner and William Baxter to the contrary. Part IV describes how the Justice Department might remedy this defect in the Guidelines and discusses the costs and benefits of doing so.

I. The Guidelines and Market Definition

The Department of Justice ("DOJ") uses the Guidelines to determine whether to challenge a merger or acquisition under section 7 of the Clayton Act, which prohibits any merger that "may . . . substantially . . . lessen competition."[7] The Guidelines, however, are considerably more significant than an ordinary statement of enforcement policy. First, the Guidelines are the only interpretation of section 7 relevant to many mergers, both because private parties usually do not play an important role in merger enforcement,[8] and because the Guidelines are generally less strin-

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6. United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377 (1956) (rejecting monopolization claims against manufacturer of cellophane).

7. Clayton Act, ch. 323, § 7, 38 Stat. 731 (1914) (codified as amended at 15 U.S.C. § 18 (1982)).

8. *See* Cohen & Sullivan, *The Herfindahl-Hirschman Index and the New Antitrust Merger Guidelines: Concentrating on Concentration*, 62 Tex. L. Rev. 453, 454 & n.5 (1983); Harris & Jorde, *supra* note 3, at 491. The major exception to this generalization is the use of merger law as a takeover defense. *Id.*

There are three primary reasons why private parties ordinarily play only a small role in merger enforcement. First, as Harris and Jorde note, "merger challenges typically are taken before economic damages occur—before the firm resulting from the merger can exercise the market power allegedly gained by the merger." *Id.*

Second, the anti-competitive effects of a merger are often dispersed. As a result, those the merger harms may not recognize their harm, or may not recognize that the merger has caused it, or may be prevented by free-rider problems from bringing suit against the firm formed by the merger.

Third, even if DOJ does not challenge the merger immediately, would-be plaintiffs have a strong incentive to wait until after a DOJ suit is brought before bringing suit themselves since the cost of a private § 7 suit is considerably less when preceded by a DOJ action. A DOJ enforcement action reduces the cost of a private suit in at least two ways. First, if the DOJ action is successful, the doctrine of collateral estoppel may permit the plaintiff to forego proving some elements of its claim. *See, e.g.,* Parklane Hosiery Co. v. Shore, 439 U.S. 322, 326 (1979). Second, the record produced by a prior DOJ action may significantly reduce a plaintiff's costs for discovery of incriminating documents and other evidence.

gent than case law.[9] Thus, if neither DOJ nor a private litigant chal-
lenges a merger, the merger never will be analyzed under section 7 case
law. Second, the Guidelines have considerable impact outside the DOJ
enforcement context. The Federal Trade Commission (FTC) uses them in
determining whether to challenge mergers[10] in industries under its juris-
diction,[11] and courts and litigants probably will use them as secondary
authority in private proceedings.[12] Some commentators, moreover, have
urged DOJ to use an analysis similar to that employed by the Guidelines
in determining whether to bring other types of antitrust suits, including
actions for price-fixing.[13]

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9. *See, e.g.*, Baker & Blumenthal, *The 1982 Guidelines and Preexisting Law*, 71 CALIF. L. REV.
311, 325-26 (1983) (Guidelines less strict than case law because they allow more broadly defined
geographic markets and alter "submarket" analysis); Fox, *The New Merger Guidelines—A Blueprint
for Microeconomic Analysis*, 27 ANTITRUST BULL. 519, 565, 575-91 (1982) (comparing Guidelines
with all Supreme Court cases decided under § 7 of Clayton Act, concluding that in 11 of 20 cases in
which Supreme Court found violation or remanded for fact-finding that might indicate violation, cur-
rent DOJ probably would not have sued); Johnstone & Schaerr, *Retooling the Merger Guidelines*, 69
A.B.A. J. 584, 587-88 (1983) (Guidelines make no mention of submarket concept and have higher
concentration thresholds than those Supreme Court seems to have used).

10. An FTC statement issued the same day as the 1982 version of the Guidelines said that the
Guidelines "will be given considerable weight by the Commission and its staff in their evaluation of
horizontal mergers and in the development of the Commission's overall approach to horizontal merg-
ers." FTC, Statement Concerning Horizontal Mergers § 4, *reprinted in* 42 ANTITRUST & TRADE
REG. REP. (BNA) No. 1069, Special Supp., June 17, 1982, S-15.

11. Formally, the FTC and DOJ both have jurisdiction to enforce sections 2, 3, 7, and 8 of the
Clayton Act. In practice, however, jurisdiction is divided along industry lines. Procedures for coordi-
nation of FTC and DOJ enforcement activities are set out in a 1948 memorandum, signed by repre-
sentatives of both agencies and supplemented by subsequent exchanges of letters. These procedures
are designed to avoid duplication of investigation activity. In any given case, the primary criterion for
determining the allocation of responsibility between the agencies is the experience of each with the
company or industry being investigated. A.B.A., REPORT OF THE ABA COMMISSION TO STUDY THE
FEDERAL TRADE COMMISSION 64-66 (1969). *See also Panel Discussion: The New Merger Guide-
lines*, 51 ANTITRUST L.J. 317, 320-21 (1982) (discussing liaison agreement between DOJ and the
FTC).

12. Judicial opinions in merger cases have often cited the first DOJ Guidelines, which were is-
sued in 1968. This is particularly true of opinions written within a relatively short time after DOJ
issued those Guidelines. *See* A.B.A. SEC. ANTITRUST LAWS, MONOGRAPH NO. 7, MERGER STAN-
DARDS UNDER U.S. ANTITRUST LAW 69-79 (1981), and cases cited therein. One reason for judicial
deference to the 1968 Guidelines, however, is that they were regarded as consistent with then-existing
judicial precedents. *See id.* at 69. The present Guidelines, by contrast, deviate from present case law
in several respects. *See supra* note 9. For a discussion of cases in which courts and the FTC have cited
and used the present Guidelines' methodology, see Cohen & Sullivan, *supra* note 8, at 502-04.

13. *See, e.g.*, R. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 55-56 (1976). Posner
advocates a two-stage approach to implementing the prohibition against collusive price-fixing con-
tained in § 1 of the Sherman Act, ch. 647, § 1, 26 Stat. 209 (1890) (codified as amended at 15 U.S.C.
§ 1 (1982)). The first stage is the identification of "markets in which conditions are propitious for the
emergence of collusion," which includes measuring concentration, preferably by means of the
Herfindahl-Hirschman Index employed in the present Guidelines. R. POSNER, *supra*, at 55. *See infra*
pp. 673-74.

A. *Market Share and Concentration Thresholds*

The Guidelines provide a framework by which DOJ determines whether a merger will significantly increase the "market power" of the merging firms and thereby lessen competition.[14] Market power, rigorously defined, is the ability to raise, and profitably sustain, the price of a good above the "competitive price."[15] The competitive price is the price that would prevail in a competitive market, a market in which there is no collusion and in which no single buyer or seller can affect the price.[16]

Since one cannot measure directly the post-merger market power of a firm about to be formed by a merger,[17] the Guidelines use "concentration" as a proxy for market power.[18] Concentration is simply some measure of the distribution of market shares in the industry,[19] with market shares usually defined in terms of dollar sales or capacity.[20] The Guidelines measure concentration by means of the Herfindahl-Hirschman Index[21] ("HHI"), defined as the sum of the *squares* of the market shares of

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14. *See* 1984 Guidelines § 1.

15. *See id.*; Landes & Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 937 (1981).

16. *See* R. POSNER & F. EASTERBROOK, ANTITRUST 1060-62 (2d ed. 1981).

17. This fact precludes using the Lerner Index as a measure of market power in merger cases, as suggested by Landes & Posner, *supra* note 15, at 972-76. The Lerner Index presupposes the existence of information about either prices or elasticities. But elasticities are functions of the prices at which they are measured. *See, e.g.*, H. VARIAN, MICROECONOMIC ANALYSIS 53, 54 (1978) (showing elasticity as function of quantity demanded, which in turn is function of price). And post-merger prices cannot be measured until after the merger takes place—by which time it usually is too late, as a practical matter, for DOJ to challenge the merger.

18. 1984 Guidelines §§ 3.0-3.1 ("Other things being equal, concentration affects the likelihood that one firm, or a small group of firms, could successfully exercise market power."). Concentration is a reasonable proxy for market power because, as Scherer notes, "economic theory suggests that the vigor of competition is related positively to the *number of firms* in the industry, other things being equal," and that "the degree of inequality can also matter." F. SCHERER, *supra* note 5, at 56 (emphasis in original). Measures of concentration, including the HHI used in the Guidelines, take both of these factors into account. *See infra* notes 21-22 and accompanying text. Recent theoretical work, moreover, has shown that, under certain assumptions, the HHI is directly related to more direct measures of market power such as the Lerner Index. *See, e.g.*, Dansby & Willig, *Industry Performance Gradient Indexes*, 69 AMER. ECON. REV. 249, 255 (1979); Ordover, Sykes & Willig, *Herfindahl Concentration, Rivalry, and Mergers*, 95 HARV. L. REV. 1857, 1863-65 (1982). *But see* Cohen & Sullivan, *supra* note 8, at 486-87 (questioning grounds for mathematical relationship between Lerner Index and HHI).

19. *See* 1984 Guidelines § 3.1; F. SCHERER, *supra* note 5, at 56-59; Baxter, *Responding to the Reaction: The Draftsman's View*, 71 CALIF. L. REV. 618, 625 (1983). A traditional measure of concentration, for example, is the "four-firm concentration ration" or "CR4," which is just the sum of the market shares of the four largest firms.

20. The Guidelines, for example, provide that DOJ "normally will include in the market the total sales or capacity of all domestic firms (or plants) that are identified as being in the market . . ." and will choose between sales and capacity depending on the availability of data and on which of these measures appears to be the best indicator of the effect of the merger on market power. 1984 Guidelines § 2.4. The Guidelines also note two exceptions to this general rule: when total sales or capacity appears to overstate the competitive significance of the firm, and when data on total sales or capacity are unavailable. *Id.*

21. *Id.* § 3.1. For a history of HHI, see Calkins, *The New Merger Guidelines and the Herfindahl Index*, 71 CALIF. L. REV. 402, 408-15 (1983); Hirschman, *The Paternity of an Index*, 54

all firms in the industry. An industry of five firms of equal size, for example, has an HHI of 2000.[22] The HHI ranges in value from 0 to 10,000.[23]

Under the Guidelines, DOJ's decision whether to challenge a horizontal merger depends on three variables: post-merger concentration as measured by the HHI, the *change* in concentration brought about by the merger (post-merger HHI less pre-merger HHI, or "ΔHHI"), and the market share of the larger of the merging firms.[24]

The Guidelines create a "safe harbor" for horizontal mergers in industries with post-merger HHI's below 1000; DOJ will challenge such mergers only in "extraordinary circumstances"[25] no matter what the value of ΔHHI. In addition, DOJ is "unlikely" to challenge any merger producing a ΔHHI less than 50[26] no matter what the value of HHI, and is also unlikely to challenge any merger producing a ΔHHI less than 100 in an industry with an HHI between 1000 and 1800.[27] On the other hand, DOJ will challenge any merger producing a ΔHHI greater than 100 in an industry with an HHI above 1800, except in "extraordinary cases."[28] Mergers that do not fall in one of the above categories make up an "intermediate" group and are judged by a host of other factors in addition to HHI and ΔHHI.[29] These include ease of entry into the industry, homogeneity of the industry's products, and evidence of past collusion.[30] Regardless of the values of HHI and ΔHHI, DOJ (under the "leading firm proviso") also will challenge any merger if one of the merging firms is the largest in the market and has a market share of 35% or more.[31]

B. *Market Definition and the Baseline Price*

In any particular industry, the values of these three variables—HHI, ΔHHI, and the market share of the larger of the merging firms—depend critically upon the size of the relevant market defined by DOJ.[32] Indeed,

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AM. ECON. REV. 761 (1964).

22. If there are five firms of equal size, then each firm has a market share of 20%. Five times 20-squared is 2000.

23. If there is only a single firm in the market, its market share, of course, is 100%. 100-squared is 10,000. At the other extreme, if the number of firms in the market approaches infinity, and the firms are of relatively equal size, their market shares approach zero, and HHI approaches zero.

24. DOJ also employs the HHI and, to some extent, the market shares of the merging firms in evaluating non-horizontal mergers. *See* 1984 Guidelines §§ 4.131, 4.134, 4.213, 4.221, 4.222. The analysis contained in this Note also applies to these uses of HHI and market shares by DOJ.

25. 1984 Guidelines § 3.11.

26. *Id.*

27. *Id.*

28. *Id.*

29. *Id.*

30. *Id.* §§ 3.2–3.4. Note that DOJ attempts to determine whether the market is functioning competitively only if the merger falls in this intermediate range. *See infra* note 92.

31. 1984 Guidelines § 3.12.

32. *See infra* pp. 678–83.

market definition often is the most important step in merger analysis.[33] The size of the market depends, in turn, on the price used as a baseline for applying the market definition procedures.

The Guidelines define the market in terms of the substitutability or interchangeability of the products of other firms for the product produced by the merging firms.[34] The Guidelines measure substitutability by means of a "five-percent test," which operates as follows: Assume that the merging firms raised the price of their product by five percent (or some other "small but significant" amount[35]) and sustained that increase for one year. Then ask, "What is the smallest group of producers, in adjacent geographic areas and producing the merging firms' product or its close substitutes, that would have to act in concert with the merging firms[36] in order to make the five-percent price increase profitable for all?"[37] That is, what other firms also would have to raise prices by five percent for consumers located near the merging firms to pay the merging firms' increased price rather than buy substitutes?

The sales or total capacity of these firms and the merging firms constitutes the relevant market.[38] If the merging firms would not need the cooperation of any other firms to sustain the five-percent price increase profitably, the merging firms alone constitute the relevant market. The larger the group that would have to collude to make the price increase profitable, the larger the market is. The various products sold by this group constitute the "product dimension" of the market or the "product market."[39] Similarly, the geographic area in which the firms sell these products is the "geographic dimension" of the market or the "geographic market."[40]

The size of the market is highly sensitive to the price (of the merging firms' product) used as the baseline for application of the five-percent test;

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33. *See* Baker & Blumenthal, *supra* note 9, at 322 ("Under . . . traditional merger jurisprudence . . ., market definition has been the crucial issue in the bulk of horizontal merger cases."); Werden, *Market Delineation and the Justice Department's Merger Guidelines,* 1983 DUKE L.J. 514, 514 ("market delineation is the most important step in merger analysis"); *see also* F. SCHERER, *supra* note 5, at 59 (danger with any market structure index is that, because of faulty market definition, the index will convey "a false impression about the actual degree of structural monopoly").

34. *See, e.g.,* Baker & Blumenthal, *supra* note 9, at 324–25. Baker and Blumenthal view the Guidelines' discussion of market definition as their "most important contribution to future merger enforcement." *Id.* at 322.

35. The DOJ statement accompanying the 1984 version of the Guidelines emphasizes that, ". . . the 'five-percent test' is not an inflexible standard that will be used regardless of the circumstances of a particular case. . . . [T]he Department may at times postulate a price increase that is much larger or smaller than five percent, depending on the nature of the industry involved." 49 Fed. Reg., *supra* note 2, at 26,824. The exact price increase postulated by the Justice Department, however, does not affect the analysis presented in this Note.

36. Such concerted action could include explicit or tacit collusion, or even common ownership.

37. *See* 1984 Guidelines §§ 2.11, 2.31.

38. *Id.*

39. *Id.* § 2.1.

40. *Id.* § 2.3.

for any industry, a higher baseline price usually leads to both a larger product market and a larger geographic market. A higher baseline price enlarges the product market because a product usually acquires more close substitutes as its price rises.[41] For example, consumers may not consider pink grapefruit a good substitute for white grapefruit if pink grapefruit cost $1/lb. and white grapefruit cost $.10/lb; consumers may consider them close substitutes, however, if white grapefruit cost $.90/lb. Increasing the number of substitutes increases the number of different products whose sellers would have to collude in order to make a five-percent price increase profitable, which in turn enlarges the product market.

Similarly, a higher baseline price enlarges the geographic market because it enlarges the geographic area from which other sellers of the product and its substitutes could profitably transport their goods to customers of the merging firms. That is, a higher baseline price enlarges the geographic area in which sellers would have to collude in order to make a five-percent price increase profitable.[42]

C. The Cellophane *Fallacy in the Guidelines*

The previous discussion raises a fundamental criticism of the Guidelines' methodology: In industries characterized by market power (e.g., because of collusion or monopoly) the prevailing price is usually higher than the competitive price.[43] When applying the Guidelines to mergers in such industries, however, DOJ applies the five-percent test to the prevailing price rather than to the competitive price.[44] As the previous discussion

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41. Another way of saying this is that cross-elasticity of demand increases with price. *See, e.g.,* Harris & Jorde, *supra* note 3, at 484. Cross-elasticity is a measure of the interchangeability of the product in question for other products. Formally, the cross-elasticity of demand for product x with respect to product y is the proportionate effect of a one percent change in the price of y on the quantity of x demanded. E. MANSFIELD, MICROECONOMICS 119-21 (4th ed. 1982).

42. Suppose, for example, that widgets are produced in cities A, B, and C, and are sold for $1 in all three cities. Suppose also that it costs $1 to transport one widget from any city to any other, and that at prevailing prices it is not profitable for any producer to sell outside the city in which its widget plant is located. In this situation, each city is a separate geographic market.

Now suppose that producers in city B form a cartel and in so doing raise the price of widgets to $2.01. This makes it profitable for producers in cities A and C to transport widgets to city B, so that any market including producers in city B also includes producers in cities A and C. If producers in city B now merge, the relevant market will include cities A and C as well as city B.

43. Absent unusual strategic considerations, it would be irrational for colluding firms to agree on a price *below* the competitive price, which is the price they would get if there were no collusion.

44. The Guidelines state that "the Department will use prevailing prices." 1984 Guidelines § 2.11. The Guidelines also state, however, that DOJ "may use likely future prices when changes in the prevailing prices can be predicted with reasonable certainty." *Id.* § 2.11. Since cartels are inherently unstable, *see infra* text accompanying notes 73-79, prices in cartelized industries are likely to return to competitive levels. This would argue for using the competitive baseline price when analyzing a merger between colluding firms. DOJ, however, does not accept this interpretation of "likely future" price. Former Assistant Attorney General William Baxter has indicated that whenever DOJ faces a choice between a supra-competitive prevailing price and the competitive price, DOJ will choose the former. Baxter, *supra* note 19, at 623-24 n.35 ("The [Antitrust] Division was aware of

shows, both the product and geographic markets may be larger than if the competitive price were used;[45] the overall market, therefore, may be substantially larger. Such overstatement of the size of the market leads to understatement of the market power of the merging firms, and therefore to understatement of the anti-competitive consequences of the merger.[46]

This feature of the Guidelines is similar to the analysis of market power in the *Cellophane* case,[47] an analysis many commentators regard as erroneous.[48] In that case, the United States Supreme Court apparently determined the size of the relevant market, as defined by the number and availability of substitutes, with reference to a supra-competitive (monopoly) price rather than the lower competitive price.[49] As a result, the Court held that the defendant had no market power[50] when in fact it had substantial market power.[51] The analytic error that produces this fallacy is a failure to count the market power a firm has already exercised (in raising its price above the competitive level), and instead counting only the market power the firm has not yet used.[52]

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this problem [the possibility that the 5% test might be applied to a supra-competitive rather than competitive price] in drafting the Guidelines; however, it was not clear that anything needed to be done about it."); *see also id.* at 624 n.35 (Baxter's argument that appropriate baseline in case of merger between colluding firms is prevailing, supra-competitive price).

45. *See supra* p. 676.

46. The relationship between the size of the market and DOJ's analysis of a merger's anti-competitive effects is set out precisely and in detail *infra* pp. 678–83.

47. United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377 (1956).

48. *See, e.g.,* R. POSNER, *supra* note 13, at 127–29; Baker & Blumenthal, *supra* note 9, at 322 n.54; Harris & Jorde, *supra* note 3, at 484. *See generally* Kaplow, *The Accuracy of Traditional Market Power Analysis and a Direct Adjustment Alternative,* 95 HARV. L. REV. 1817, 1832–35 (1982) (analysis of substitution possibilities with reference to prevailing market conditions "presents a subtle, but most important, analytic trap").

49. The *Cellophane* opinion, in upholding the trial court's determination that the relevant market consisted of all "flexible wrapping material," contained the following analysis of interchangeability (cross-elasticity of demand):

An element for consideration [in defining the relevant market] is the responsiveness of the sales of one product to price changes of the other. If a slight decrease in the price of cellophane causes a considerable number of consumers of other flexible wrappings to switch to cellophane, it would be an indication that a high cross-elasticity of demand exists between them; that the products compete in the same market.

351 U.S. at 400 (footnote omitted). The Court, however, failed to recognize that cross-elasticity of demand is in part a function of the price at which it is measured. *See supra* note 17. The Court assumed that the current price was the appropriate baseline from which to analyze cross-elasticity, without asking whether that price was competitive.

50. 351 U.S. at 404.

51. There was evidence that du Pont had an average return of 31% before taxes on its cellophane investment during the relevant period. *See* 351 U.S. at 421 & n.15 (Warren, C.J., dissenting). *See also supra* note 48 (citing other discussions of this error).

52. The *Cellophane* case itself illustrates this assertion. Recall that the prevailing price for cellophane was arguably supra-competitive, and that at that price consumers regarded a number of other flexible wrapping materials as good substitutes for cellophane. *See supra* notes 49 & 51. If consumers regarded these other products as good substitutes for cellophane at the prevailing, supra-competitive price, then they probably would not have regarded them as good substitutes if cellophane were priced competitively. By charging a supra-competitive price, then, du Pont (the producer of cellophane) had already exercised most or all of its market power, i.e., it had raised the price of cellophane until other

II. EFFECTS OF THE FALLACY

As already discussed, DOJ's decision whether to challenge a merger depends on three quantities: the market share of the larger firm, post-merger HHI, and ΔHHI.[53] An overly large market[54] affects each of these quantities, usually in a way that decreases the likelihood of a DOJ challenge.

A. *Market Share of Larger Firm*

First, an overly large market produces market shares that are artificially small, thus decreasing the likelihood that the larger of the merging firms will have a market share sufficient to be challenged under the Guidelines' "leading firm proviso."[55] More precisely, if the market is m times too large, the market shares of the merging firms will be m times too small.[56] For example, if the market defined by DOJ is twice as large as it ought to be (i.e., $m = 2$), then the market shares of the merging firms will be two times too small, or half what they would be if DOJ defined the market properly.

B. *HHI*

The second effect of an overly large market is that it may decrease HHI, thus reducing the likelihood that DOJ will challenge the merger. To see this, consider the following equation, which shows the effect on HHI of adding a new group of firms to an existing market:

$$\text{HHI*} = \frac{\text{HHI}_0 + c^2\,\text{HHI}_a}{(1 + c)^2} \qquad (1)$$

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flexible wrapping materials were regarded as good substitutes. It could not, therefore, raise its price any higher and continue to increase its profits. *See* R. POSNER & F. EASTERBROOK, *supra* note 16, at 360–62; Kaplow, *supra* note 48, at 1833–34; Landes & Posner, *supra* note 15, at 961. The Court, then, mistakenly interpreted du Pont's inability to raise its prices further as an indication that du Pont had no market power at all, rather than as an indication that du Pont had already exhausted its market power.

53. *See supra* p. 674.

54. A market, of course, might be overly large not only because of a supra-competitive baseline price, but also because of inaccuracies in estimation. For example, DOJ might over- or under-estimate the responsiveness of consumers or of other firms to a 5% increase in the price of the merging firms' product. Similarly, it might fail accurately to measure the quantity of the product a producer consumes internally. *See* 1984 Guidelines §§ 2.12, 2.21, 2.23.

55. *See supra* p. 674.

56. *Proof:* Let X_0 be the size of the "original" or "proper" market (measured in sales, capacity, etc.), and let q_i be the production of the i-th firm (measured as the size of the market is measured). The market share of the i-th firm is therefore q_i/X_0. Now suppose that by adding more firms the market becomes m times larger than X_0, that is, the size of the new market is mX_0. In this market, the market share of the i-th firm is now q_i/mX_0, which is m times smaller than when the market was defined to be of size X_0.

where:

HHI_0 = HHI computed before the addition of the new group of firms,

HHI^* = HHI computed after the addition of the new group,

HHI_a = HHI computed only for the new group (as if the new group were a separate market), and

c = ratio of the sales or production of the new group of firms (the size of the added "market") to the size of the market before the addition of the new group.[57]

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57. *Proof:* Assume there are n firms in the properly defined market, producing a total of X_0 units, and that there are k firms in the group improperly added to the market, producing a total of X_a units. The market which results from the addition therefore contains n + k firms and is of size $X_0 + X_a$. Then if q_i is the production of the i-th firm, the i-th firm's share of this new, composite market is $q_i/(X_0 + X_a)$. Hence HHI^*, the HHI computed for the entire market is as follows:

$$HHI^* = \sum_{i=1}^{n+k} \left(\frac{q_i}{X_0 + X_a}\right)^2$$

$$= \frac{\sum_{i=1}^{n+k} q_i^2}{(X_0 + X_a)^2}$$

$$= \frac{\sum_{i=1}^{n} q_i^2 + \sum_{i=n+1}^{n+k} q_i^2}{(X_0 + X_a)^2}$$

$$= \frac{\dfrac{\sum_{i=1}^{n} q_i^2}{X_0^2} + \left(\dfrac{X_a^2}{X_0^2}\right)\dfrac{\sum_{i=n+1}^{n+k} q_i^2}{X_a^2}}{\left(\dfrac{X_0 + X_a}{X_0}\right)^2}$$

$$= \frac{\sum_{i=1}^{n} \left(\dfrac{q_i}{X_0}\right)^2 + \left(\dfrac{X_a}{X_0}\right)^2 \sum_{i=n+1}^{n+k} \left(\dfrac{q_i}{X_a}\right)^2}{\left(1 + \dfrac{X_a}{X_0}\right)^2}$$

Now, since $HHI_0 = \sum_{i=1}^{n} \left(\dfrac{q_i}{X_0}\right)^2,$

$HHI_a = \sum_{i=n+1}^{n+k} \left(\dfrac{q_i}{X_a}\right)^2,$ and $c = \left(\dfrac{X_a}{X_0}\right),$

As equation (1) shows, the effect on HHI depends upon both the magnitude of the increase in the size of the market (c) and the level of concentration among the added firms (as measured by HHI_a).

The following example illustrates the interpretation of equation (1). Suppose that a market initially is defined to include producers of broccoli in Georgia and that the HHI in this market (HHI_0) is 2400. Now suppose that, because producers in Georgia are charging a collusive, supra-competitive price, the market is expanded to include broccoli producers in Alabama.[58] Assume also that the HHI computed only for Alabama broccoli producers (HHI_a) is 1200 and that Alabama produces the same amount of broccoli as Georgia (so that $c = 1$). The market thus defined is twice as large as it ought to be. According to equation (1), the new HHI which results from the addition of Alabama producers to the market is:

$$HHI^* = \frac{2400 + (1)^2 (1200)}{(1 + 1)^2}$$

$$= \frac{3600}{4}$$

$$= 900$$

Thus, if the market absent supra-competitive pricing includes only Georgia, but DOJ fails to account for this collusive pricing and hence defines the market to include both Georgia and Alabama, then the relevant HHI will be 900 rather than 2400. Accordingly, DOJ will be much less likely to challenge any merger between firms in that market; indeed, in this case DOJ's erroneous definition of the market would lead DOJ to view the merger as a "safe harbor" merger rather than as one that DOJ should challenge automatically.

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we obtain equation (1):

$$HHI^* = \frac{HHI_0 + c^2 HHI_a}{(1 + c)^2}$$

This completes the proof.

Equation (1) can of course be viewed as a special case of a more general formula expressing the HHI for a composite market (i.e., a market formed by combining two smaller markets) as a function of the HHI's of the component markets. If HHI_i is the HHI for a market of size X_i, HHI_j is the HHI for a market of size X_j, and $c = X_j/X_i$, then we have the following expression for concentration in the composite market, HHI_{i+j}:

$$HHI_{i+j} = \frac{HHI_i + c^2 HHI_j}{(1 + c)^2} \qquad (2)$$

58. This would be an expansion of the geographic dimension of the market; because of the supra-competitive price in Georgia, Alabama producers can profitably ship broccoli to Georgia, whereas they could not, it is assumed, if Georgia producers were charging a competitive price.

Equation (1) also implies that, where the original or "proper" market is highly concentrated (and pre-merger collusion is therefore likely), an increase in the size of the market usually will decrease HHI.[59] Whenever market conditions are ripe for pre-merger collusion, therefore, an overly broad market usually decreases the likelihood of a challenge by DOJ. Moreover, this tendency becomes even stronger as concentration in the

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59. Revesz has shown that an increase in market size does not always decrease HHI. R. Revesz, Market Power, Elasticity of Demand and the Justice Department's Guidelines for Horizontal Mergers 19 (1983) (unpublished manuscript on file with the Yale Law Journal). The effect of an increase in market size on HHI is therefore ambiguous.

The following inequality, however, gives necessary and sufficient conditions under which an increase in the size of the market will *increase* HHI:

$$HHI_a > \frac{c+2}{c} HHI_0 \qquad (3)$$

This expression is proved below. An analysis of the expression shows that it is not likely to be satisfied in practice. First, HHI_a must be larger than HHI_0 for an increase in the size of the market to increase HHI (since c is always greater than 0). Second, where HHI_0 is large, an increase in the size of the market cannot increase HHI unless c is quite large, or HHI_a is quite large, or both. For example, if HHI_0 is 1800 and c is 1, then the addition of a new group of firms will *decrease* HHI *unless* HHI_a is greater than 5400. Or if HHI_a is 1900 (only slightly larger than HHI_0), then c must be greater than 36. That is, the production of the added firms must be thirty-six times that of the firms in the original market in order for the addition of the new firms to increase HHI. Otherwise the addition of the new firms will decrease HHI. The following table gives some other combinations:

TABLE 1

Values of HHI_a Below Which Any Increase in the
Size of the Market Will Decrease HHI

		c						
		.5	1	2	3	4	5	10
	1000	5000	3000	2000	1667	1500	1400	1200
	1400	7000	4200	2800	2333	2100	1960	1680
HHI_0	1800	9000	5400	3600	3000	2700	2520	2160
	2500	*	7500	5000	4167	3750	3500	3000
	5000	*	*	*	8333	7500	7000	6000
	10,000	*	*	*	*	*	*	*

Note: An asterisk (*) indicates that, for that particular combination of c and HHI_0, any increase in the size of the market will decrease HHI, no matter what the value of HHI_a.

Proof of Equation (3): We wish to derive the conditions under which an increase in the size of the market will increase HHI, that is, the conditions under which HHI* will be greater than HHI_0. From equation (1) we have:

$$HHI^* = \frac{HHI_0 + c^2 HHI_a}{(1 + c)^2}$$

Therefore, the following inequality describes the situation in which HHI* will be greater than HHI_0:

$$\frac{HHI_0 + c^2 HHI_a}{(1 + c)^2} > HHI_0$$

original market increases.[60] In fact, if the original market is perfectly concentrated (i.e., it contains a single monopolist), an increase in the size of the market *always* will decrease HHI.[61]

C. ΔHHI

The third and perhaps most important effect of an overly large market is that it decreases ΔHHI. Specifically, a merger in a market that is artificially large by a factor of m produces a ΔHHI that is artificially small by a factor of m-squared.[62] To see the importance of this observation, con

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We now solve for HHI_a:

$$HHI_0 + c^2 HHI_a > (1 + c)^2 HHI_0$$

$$HHI_a > \frac{(1 + c)^2 HHI_0 - HHI_0}{c^2}$$

$$HHI_a > \frac{(1 + 2c + c^2) HHI_0 - HHI_0}{c^2}$$

$$HHI_a > \frac{2c + c^2}{c^2} HHI_0$$

$$HHI_a > \frac{c + 2}{c} HHI_0$$

This completes the proof.

60. That is, as concentration in the original market increases, there is a greater likelihood that increasing the market will decrease HHI.

Proof: Equation (3) can be rewritten:

$$HHI_0 < \frac{c}{c + 2} HHI_a$$

Like equation (3), this inequality describes the conditions under which an increase in the size of the market will increase HHI. Observe that, for fixed c and HHI_a, as HHI_0 rises it is less likely that this inequality will be satisfied. Hence as HHI_0 rises, it is less likely that an increase in the size of the market will increase HHI, and correspondingly more likely that HHI will decrease.

61. This follows from the observation made *supra* note 59 that HHI_a must be larger than HHI_0 for an increase in the size of the market to increase HHI. If the original market is perfectly concentrated, i.e., $HHI_0 = 10,000$, then this condition cannot possibly be met.

62. *Proof:* Let X_0 be the size of the original market, and X^* be the size of the market after the increase in market size, so that $m = X^*/X_0$. Let the production levels of the merging firms be q_1 and q_2, respectively. The ΔHHI for any merger can be calculated by doubling the product of the market shares of the merging firms. *See* 1984 Guidelines § 3.11 n.15. Accordingly, if DOJ defines the market to be of size X_0, then ΔHHI is as follows:

$$\Delta HHI_0 = 2 \left(\frac{q_1}{X_0}\right) \left(\frac{q_2}{X_0}\right)$$

sider again the example of the broccoli producers.[63] If, as in that example, a supra-competitive baseline price leads to a market twice as large as a competitive baseline does, a merger between two firms in the expanded market will produce a ΔHHI four times smaller than if DOJ used the competitive price. This makes a challenge by DOJ significantly less likely. Suppose, for example, that firms accounting for 15% and 10% of the Georgia market merged. Then the relevant ΔHHI would be either 300 or 75, depending upon whether the market included only Georgia or both Georgia and Alabama.[64]

III. APPROPRIATENESS OF A COMPETITIVE BASELINE PRICE: THE MEANING OF "LESSEN COMPETITION"

Paradoxically, then, a merger between colluding firms may fare much better under all the Guidelines' measures than a merger in a competitive but otherwise identical industry.[65] As the preceding analysis indicates, this

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If, however, DOJ defines the market to be of size X*, then ΔHHI is as follows:

$$\Delta\text{HHI}^* = 2\left(\frac{q_1}{X^*}\right)\left(\frac{q_2}{X^*}\right)$$

$$= 2\left(\frac{q_1}{mX_0}\right)\left(\frac{q_2}{mX_0}\right)$$

$$= \frac{1}{m^2}\left[2\left(\frac{q_1}{X_0}\right)\left(\frac{q_2}{X_0}\right)\right],$$

or

$$\Delta\text{HHI}^* = \frac{1}{m^2}\Delta\text{HHI}_0$$

Thus, defining the market to be of size X* rather than of size X_0 results in a reduction of ΔHHI by a factor of m-squared.

63. *See supra* p. 680.

64. These numbers are calculated as follows: If Georgia is the relevant market, then ΔHHI is 2(15)(10), or 300. If, however, both Georgia and Alabama are included in the market (so that the market is twice what it would be if only Georgia were included), the market shares of the merging firms are 7.5% and 5%, respectively, and ΔHHI is therefore 2(7.5)(5), or 75.

65. As an illustration, consider again the example of the two broccoli producers discussed above, *supra* pp. 680, 682–83. If the two merging broccoli producers are members of a successful cartel, then the market will be defined so as to include producers in both Georgia and Alabama, the firms' market shares will be 7.5% and 5%, post-merger HHI will be 900, and the ΔHHI produced by the merger will be 75. Now suppose, instead, that Georgia broccoli producers have not succeeded in forming a cartel and are charging competitive prices. Otherwise the industry is identical to the one described above. Then the geographic market includes only Georgia, the firms' market shares are 15% and 10%, HHI is 2400, and ΔHHI is 300. The only difference between the first and second mergers is that the first merger takes place in a cartelized industry while the second takes place in a competitive industry. Yet the Guidelines treat the first merger much more leniently than the second. Indeed, the first merger falls into a "safe harbor" because post-merger HHI is less than 1000.

Note, however, that an improperly large market need not always lead to greater leniency. First, as already noted, *see supra* note 59, an artificially large market may increase HHI. Second, an artificially large market might cause a vertical or conglomerate (non-horizontal) merger to appear horizontal, thus subjecting the merger to the stricter standards that apply to horizontal mergers.

paradox is the product of DOJ's willingness to employ a supra-competitive price as the baseline for defining the relevant market.

Richard Posner[66] and William Baxter,[67] however, have argued that whenever the prevailing market price is higher than the competitive price, courts and enforcement agencies should use the prevailing price in defining the market.[68] Only then, they reason, can a market analysis provide the information pertinent to a section 7 inquiry: the ability of the merging firms to impose *further* price increases upon their customers.[69] In their view, a merger between firms already charging a monopoly price is innocuous, since the firms cannot profitably increase their price after the merger.[70] Such a merger, then, does not "lessen competition"[71] and therefore does not violate section 7.

Whatever their other weaknesses, the 1968 Guidelines, which the 1982 Guidelines replaced, did not discriminate in favor of firms already exercising market power because the 1968 Guidelines defined markets without reference to interchangeability: They defined the product market as consisting of "any product or service which is distinguishable as a matter of commercial practice from other products or services," and defined the geographic market as "any commercially significant section of the country." U.S. Dep't of Justice, Merger Guidelines—1968 (May 30, 1968), *reprinted in* 2 TRADE REG. REP. (CCH) ¶ 4510 (Aug. 9, 1982). Of course, the 1968 Guidelines' disregard of interchangeability made their market definition procedures rather arbitrary.

66. According to Posner:
This problem [the *Cellophane* fallacy] does not arise in a merger case, where the issue is not whether the current price exceeds the competitive level but whether the merger might result in a further deterioration of competitive conditions. If there are good substitutes in consumption or production at the *current* price, it is a detail whether that price is competitive or monopolistic.
R. POSNER, *supra* note 13, at 128-29 (emphasis added). Posner is now a judge of the U.S. Court of Appeals for the Seventh Circuit.

67. Baxter has made a similar argument:
The problem in the *Cellophane* case can lead to erroneous analysis under § 2 of the Sherman Act because in such a case it is necessary to determine whether a firm is presently exercising market power in order to determine whether corrective action is necessary to reduce that power. On the other hand, horizontal merger analysis under § 7 of the Clayton Act is concerned with the probability that a merger will decrease competition in the future . . . . If the firm or firms are exercising their market power . . . so that a 5% price increase will not be profitable, however, it may be inappropriate to challenge the merger. Prohibiting the merger likely will have no effect on the exercise of market power . . . .
Baxter, *supra* note 19, at 624 n.35. Baxter was Assistant Attorney General in charge of the Antitrust Division when the 1982 version of the present Guidelines was released.

68. Gregory J. Werden, Senior Economist at the Antitrust Division, has a similar view. *See* Werden, *supra* note 33, at 525-26. Werden, however, notes an "exception" to this position. After referring to the Guidelines' provision that the prevailing or likely future price will be used as the baseline, *see* 47 Fed. Reg., *supra* note 1, at 28,494 n.6, he says that the "only possible exception" to the rule that the prevailing rather than the competitive price should be used as the baseline in strictly horizontal mergers is a case in which the merger will help hold a shaky cartel together. Werden, *supra* note 33, at 526. The problem with this position, however, is that DOJ cannot know whether the merging firms are members of a shaky cartel without first determining that they are members of a cartel. Such a determination requires that DOJ analyze, directly or indirectly, whether the merging firms are charging a supra-competitive price. Under the Guidelines, however, DOJ will not make such an analysis if a merger falls into a "safe harbor" or "unlikely to challenge" category. *See infra* note 92.

69. *See supra* notes 66-67.

70. The monopoly price is, by definition, the price at which a monopolist's profits are maximized. Thus, a firm charging a monopoly price cannot profitably increase its price. *See* R. POSNER, *supra* note 13, at 241.

71. *See supra* notes 66-67. There appears to be no case law directly supporting or refuting this

This view is questionable because it rests upon an interpretation of section 7 that is overly narrow as a matter of economic theory and is inconsistent with the judicial doctrine of "actual potential competition." DOJ's acceptance of this view, moreover, leads to an interpretation of concentration data that is of limited usefulness in analyzing a merger's competitive effects.

A. *Economic Theory*

Contrary to the Posner-Baxter view, a producer's ability to impose additional price increases upon consumers is not the only factor that, as a matter of economic theory, ought to be considered in analyzing a horizontal merger under section 7. Although a merger between firms already charging a collusive, supra-competitive price might not permit an additional increase in price, such a merger might nonetheless "lessen competition" in violation of section 7 by giving the new firm an increased ability to *sustain* a supra-competitive price. In the language of the Guidelines, such a merger would thereby "facilitate" the exercise of whatever market power already exists.[72]

A merger between colluding firms might lead to this result for two reasons. First, a smaller number of firms generally can collude more easily than a larger number.[73] A single firm monopoly, for example, is less prone to spontaneous collapse than a cartel composed of many small producers. Second, a merger often reduces the likelihood that a firm's pricing activities will be challenged in court. Because a firm cannot conspire with itself to fix prices,[74] for example, a monopoly created by merger becomes

position. Many of the "potential competition" cases discussed below, however, indirectly support the contrary position. *See infra* notes 83-85.

72. The Guidelines state that "mergers should not be permitted to create or enhance 'market power' *or to facilitate its exercise."* 1984 Guidelines § 1 (emphasis added). The Guidelines also recognize that, in a market which is currently performing non-competitively, "[i]ncreased concentration . . . through merger could further facilitate the collusion that already exists." *Id.* § 3.45.

73. There are two broad reasons why price-fixing (and output-restricting) agreements tend to break down. First, the parties may have difficulty agreeing on price levels and market shares, a difficulty stemming from existing cost and market share differences. F. SCHERER, *supra* note 5, at 171-72. Second, once an agreement has been reached, individual members have strong incentives to cheat on one another by slightly undercutting the fixed price so as to increase their profits. *Id.* at 171-73. The second problem may be particularly acute in markets where effective monitoring of the agreement is difficult because of poor record-keeping, heterogeneity of products, etc. Other things being equal, these difficulties decrease as the number of colluding firms decreases.

74. Section 1 of the Sherman Act, ch. 647, § 1, 26 Stat. 209 (1890) (codified as amended at 15 U.S.C. § 1 (1982)), prohibits any "contract, combination . . . or conspiracy, in restraint of trade," implying that there must be a plurality of actors for a violation to occur. *See, e.g.,* Copperweld Corp. v. Independence Tube Corp., 104 S.Ct. 2731, 2742-44 (1984) (corporation and wholly-owned subsidiary not legally separate actors); H & B Equip. Co. v. International Harvester Co., 577 F.2d 239, 244 (5th Cir. 1978) (corporation cannot conspire with its wholly-owned subsidiary or with its employees); Joseph E. Seagram & Sons, Inc. v. Hawaiian Oke & Liquors, Ltd., 416 F.2d 71, 82-84 (9th Cir.

immune to price-fixing challenges from DOJ, the FTC, or private plain-tiffs;[75] in addition, as long as the new firm avoids such practices as preda-tory pricing, it may face little risk of a section 2 monopolization chal-lenge.[76] These considerations are important to colluding firms. Members of a cartel face the constant threat of a price-fixing suit, even if their collusion is merely tacit.[77] Moreover, since most cartels are unstable, col-luding firms also face the possibility that the cartel might collapse at any time.[78] Indeed, according to economic theory, market forces make cartels inherently unstable.[79]

A merger permits colluding firms to avoid or diminish both of these threats to their ability to charge supra-competitive prices. By abrogating these threats, a merger between colluding firms "lessens competition" be-cause it decreases the likelihood that prices in the market will return to competitive levels. A market consisting only of a monopoly is less competi-tive than a cartel, even if the cartel and monopoly currently charge the same price. Hence competition is lessened by the stabilization of existing supra-competitive prices just as it is lessened by additional movement away from competitive prices.

Section 7, therefore, should not be interpreted to prevent only those horizontal mergers that permit additional price increases. Rather, it should be interpreted to prohibit any horizontal merger that either causes prices in a market to move further from competitive levels *or* helps pre-vent the market from returning to a competitive state. Thus, the Posner-Baxter interpretation of section 7, which does not view the stabilization of supra-competitive prices as a lessening of competition, is too narrow.

1969) (rejecting doctrine of intra-corporate conspiracy), *cert. denied,* 396 U.S. 1062 (1970); J. VON KALINOWSKI, ANTITRUST LAWS AND TRADE REGULATIONS § 6.01[2][b] (1983) (general discussion of doctrine); Note, *"Conspiring Entities" Under Section 1 of the Sherman Act,* 95 HARV. L. REV. 661, 662-65 (1982) (discussing intra-corporate conspiracy doctrine).

75. The newly-formed monopolist still could be prosecuted or sued, however, for conspiracy to fix prices with other firms, or for price-fixing occurring before the merger.

76. A successful monopolization action requires a showing that a company not only possesses monopoly power, but also has acquired or maintained that power through willful acts such as preda-tion. *See, e.g.,* United States v. Grinnell Corp., 384 U.S. 563, 570-71, 576 (1966); United States v. Aluminum Co. of Am., 148 F.2d 416, 429-30 (2d Cir. 1945).

77. Not only explicit collusion, but many types of tacit collusion are illegal under § 1 of the Sherman Act. Tacit collusion has been held illegal in such "conscious parallelism" cases as Interstate Circuit, Inc. v. United States, 306 U.S. 208, 226-27 (1939) (finding of illegal, tacit agreement among film distributors not to distribute prime films to "second-run" theaters; holding that agreement may be inferred from consciously parallel action that is interdependent). *See also* F. SCHERER, *supra* note 5, at 513-20 (discussion of other conscious parallelism cases).

78. *See supra* note 73. History suggests that holding a cartel together for any substantial period can be very difficult. *See, e.g.,* Voigt, *German Experience with Cartels and Their Control During Pre-War and Post-War Periods,* in COMPETITION, CARTELS AND THEIR REGULATION 179-80, 184, 200-01 (J. Miller ed. 1962). *But cf.* F. SCHERER, *supra* note 5, at 173 (OPEC a "spectacular counterexample").

79. *See, e.g.,* H. VARIAN, *supra* note 17, at 73-74 (mathematical demonstration that any member of cartel can increase member's profits by cheating on cartel).

B. *Judicial Doctrine*

The Posner-Baxter interpretation of section 7 also is inconsistent with the judicial doctrine of "actual potential competition." Under this doctrine, a non-horizontal merger or acquisition may be held illegal under section 7 if it eliminates a firm that otherwise would have entered a market,[80] even though the firm might not be perceived as a potential entrant by other firms in the market, and therefore might not affect their pricing decisions.[81] Under this doctrine, then, a merger may be objectionable, not because it causes an immediate deterioration in market performance, but because it forecloses an opportunity for improved performance in the future.[82] Hence the doctrine is inconsistent with the Posner-Baxter interpretation of section 7, which focuses only on the immediate effects of a merger on market performance.

The actual potential competition doctrine has neither been accepted nor rejected by the United States Supreme Court.[83] Some lower courts[84] and the FTC[85] have accepted the doctrine, however, and the doctrine is explicitly incorporated in the Guidelines.[86] In the case of non-horizontal mergers, therefore, even the Guidelines do not interpret the "lessen competition" language of section 7 to mean that a merger is illegal only if it causes additional deterioration in market performance. There appears to be no good theoretical or doctrinal reason to apply such a narrow interpretation to mergers between colluding firms.[87]

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80. *See* L. SULLIVAN, HANDBOOK OF THE LAW OF ANTITRUST 636-40 (1977); J. VON KALINOWSKI, *supra* note 74, § 19.02[8][a].

81. *See* L. SULLIVAN, *supra* note 80, at 636; J. VON KALINOWSKI, *supra* note 74, § 19.02[8][b].

82. *See* J. VON KALINOWSKI, *supra* note 74, § 19.02[8][b].

83. The Court has declined to pass on the validity of the doctrine on at least two occasions. *See* United States v. Marine Bancorporation, Inc., 418 U.S. 602, 640 (1974); United States v. Falstaff Brewing Corp., 410 U.S. 526, 537 (1973).

84. *See, e.g.,* Yamaha Motor Co. v. FTC, 657 F.2d 971, 978 (8th Cir. 1981) (holding that FTC had proved defendant an actual potential entrant), *cert. denied,* 456 U.S. 915 (1982); United States v. Siemens Corp., 621 F.2d 499, 506-07 (2d Cir. 1980) (tentatively accepting doctrine, but holding that government failed to show that any potential increase in competition would be significant); FTC v. Atlantic Richfield Co., 549 F.2d 289, 293-98 (4th Cir. 1977) (acknowledging validity of doctrine, but holding that proofs were insufficient). *But see* Tenneco, Inc. v. FTC, 689 F.2d 346, 352-55 (2d Cir. 1982) (refusing to reach issue of doctrine's validity).

85. *See, e.g.,* The Bendix Corp., 77 F.T.C. 731, 817 (1970) (requiring divestiture of recently acquired company, in part because acquisition removed acquiring firm as actual potential entrant), *rev'd and remanded on other grounds,* 450 F.2d 534 (6th Cir. 1971); Beatrice Foods Co., 86 F.T.C. 1, 65 & n.6 (1975) (acknowledging validity of doctrine, but holding that proofs were insufficient), *aff'd on other grounds,* 540 F.2d 303 (7th Cir. 1976); British Oxygen Co., Ltd., 86 F.T.C. 1241, 1351, 1360-63 (1975) (affirming divestiture order on grounds that acquisition had eliminated acquiring firm as actual potential entrant), *rev'd on other grounds sub nom.* BOC Int'l Ltd. v. FTC, 557 F.2d 24 (2d Cir. 1977).

86. *See* 1984 Guidelines § 4.112.

87. There are two obvious but unpersuasive arguments against application of the actual potential competition doctrine to the question of how to treat mergers between colluding firms. First, it might be argued that the actual potential competition doctrine sheds no light on this question because the doctrine has been applied only to non-horizontal mergers. But nothing precludes analyzing mergers

C. *Interpretation of Concentration Data*

The Posner-Baxter interpretation of section 7 produces an additional difficulty: When DOJ follows that interpretation and uses a supra-competitive baseline price in defining the market, the Guidelines' concentration data lose much of their value as a measure of market power. In the Guidelines' analytic framework, concentration is useful in ascertaining market power in part because it indicates the likelihood that firms in an industry can raise their prices above competitive levels (i.e., form a cartel) or, having raised them, maintain them at that level (i.e., hold their cartel together).[88] For the HHI concentration data to reflect the likelihood that a group of firms currently charging a supra-competitive price can maintain that price, the market must be defined using the competitive price as a baseline. If the current, supra-competitive price is used as a baseline, the concentration data can predict only whether members of the cartel could successfully collude with other sellers of close substitutes[89] to raise the price even higher; the data cannot predict the likelihood that the existing cartel will hold.[90]

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between colluding firms as non-horizontal, potential competition mergers. Since colluding firms by definition do not at present compete with each other, and since a horizontal merger is often defined as a merger between competitors, a merger between colluding firms is arguably non-horizontal. Moreover, since colluding firms likely will compete with each other when their cartel collapses, the firms are, in a sense, potential competitors. Hence there is no reason why mergers between these firms should be treated under a more lenient standard than that applied to other mergers of potential competitors.

The second argument echoes the most frequent objection to the actual potential competition doctrine, namely, that the doctrine penalizes firms, not for any wrongdoing, but for doing less competitive good than they might have done. *See* D. ARMENTANO, THE MYTHS OF ANTITRUST 235 (1972). This argument has little force when applied to a merger between colluding firms, however. Using a competitive rather than a prevailing, supra-competitive baseline price in such a case does not penalize the merging firms. It merely prevents the enforcement authority from treating the merger more leniently than it would have treated it absent the collusion.

88. *See* 1984 Guidelines § 1 (market power defined as including ability to "maintain prices above competitive levels for a significant period of time").

89. "Substitutes," as used here, can refer either to "product" substitutes or to "geographic" substitutes (identical products produced elsewhere).

90. To see how the Posner-Baxter view alters the interpretation of the HHI data, consider the example of the broccoli producers, *supra* p. 680. If the market is defined to include only Georgia (the "proper" market), HHI (which is 2400 in the example) measures the dispersion of the market shares of the Georgia firms, and can be used to predict the likelihood of successful collusion among those firms. Since Georgia producers are presently charging a supra-competitive price, this HHI can be used to predict, not the likelihood that Georgia producers will collude (they have already done so), but the likelihood that their collusion will be successful, i.e., that their cartel will hold.

Suppose, however, that because of a supra-competitive baseline price the market is defined to include both Georgia and Alabama. Now HHI (which is 900 in the example) gives the size dispersion of the firms in both states, which can be used to predict the likelihood of successful collusion among those firms. Under the assumption that Alabama producers have not successfully cartelized, this HHI is a predictor of the likelihood that Alabama producers will be able, in the future, to form and maintain a cartel among themselves *and* with Georgia producers.

The latter HHI does not provide any useful information about the Georgia producers alone. It does not help predict the likelihood that Georgia producers will be able to prevent their cartel from collapsing spontaneously. Moreover, this HHI does not indicate the likelihood that Alabama producers

As the preceding discussion has shown, the Posner-Baxter interpretation of section 7 is inconsistent not only with economic theory and judicial doctrine, but also with various provisions of the Guidelines. Despite those provisions, the Guidelines adhere to the Posner-Baxter interpretation and do allow mergers between colluding firms.[91] By allowing such mergers, they permit firms that can hold a cartel together, even for a short period, to achieve in effect the status of legal monopolies. Since in such cases the Guidelines do not require DOJ to determine whether the merging firms are charging supra-competitive prices,[92] neither DOJ nor the public may know when this is happening.[93]

IV. THE SOLUTION, ITS COSTS, AND ITS BENEFITS

Perhaps the most obvious solution to this problem is for DOJ always to determine the competitive price, then employ it in each application of the Guidelines. Unfortunately, there is no quick or inexpensive way to get even a good estimate of the competitive price when a supra-competitive price prevails in the market. Nevertheless, the Guidelines themselves provide the elements of a simple and effective solution, the benefits of which clearly outweigh the costs.

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would underprice Georgia producers and thereby destroy the existing cartel in Georgia. That information, rather, is reflected in the definition of the Georgia market, from which HHI for the Georgia firms is computed. The HHI for Georgia and Alabama producers indicates only the likelihood that Alabama producers would prevent the Georgia producers from raising the price still higher.

91. *See supra* p. 676.

92. The Guidelines do suggest criteria for indirectly analyzing whether the market is currently performing "non-competitively," i.e., whether collusion is taking place. 1984 Guidelines § 3.4 (criteria include stability of market shares, whether market shares of leading firms have been declining in recent years, and profitability of leading firms over long periods). These criteria, however, are inadequate for two reasons. First, because they focus on long-run phenomena, they may fail to call DOJ's attention to evidence that the market in question has been recently cartelized. Second, according to the Guidelines, DOJ will not even look for such evidence if the merger in question initially appears to fall into the Guidelines' "safe harbor" or "unlikely to challenge" categories. *See id.* § 3.4 ("[market performance data] most likely to be important where the Department's decision whether to challenge a merger is otherwise close"); *id.* § 3.11 (analysis of market performance mentioned only in connection with mergers not falling into "likely," "unlikely," or "safe harbor" categories). The example of the broccoli producers, *supra* pp. 680, 682–83, illustrates the latter problem. Suppose that a supra-competitive price, as in the example, leads DOJ to define the market as including Georgia and Alabama. Then the merger will fall into the "safe harbor" category. In this case, DOJ will not examine indirect evidence of collusion, even though the merger clearly would be objectionable if the market were defined properly.

93. Since individuals (other than litigants) have no subpoena power, it is usually very difficult for individuals to obtain the data necessary to second-guess a definition of a market by a court or enforcement agency. Accordingly, it is very difficult to tell which mergers are between colluding firms and which are not. This is especially true when the enforcement agency decides against a challenge.

A. *A Proposed Solution*

The Guidelines include "market performance," which comprises pric-
ing behavior, as a factor to consider when evaluating mergers.[94] They also
discuss three types of evidence that may be considered in determining
whether an industry is performing competitively or noncompetitively.[95]
The problem with the Guidelines' treatment of market performance, how-
ever, is that they call for consideration of performance only in "intermedi-
ate" cases, for example, cases in which ΔHHI is above 100 and HHI is
between 1000 and 1800.[96] Thus, DOJ will not consider performance data
if a merger initially appears to fall into a "safe harbor" or "unlikely to
challenge" category, i.e., the post-merger HHI is below 1000 or ΔHHI is
below 50. As shown above, a merger might fall within one of these catego-
ries only because DOJ has erroneously used a supra-competitive baseline
price in defining the market.[97] Hence DOJ's failure to consider perform-
ance information *before* defining the relevant market may lead to mean-
ingless measures of concentration.

This suggests that, to the extent it can, DOJ (and others who have
occasion to apply the Guidelines) ought to examine performance before
defining the market.[98] This inquiry should proceed in two stages. First,
DOJ should examine the profitability of the merging firms during recent
months and years to determine whether their profitability significantly ex-
ceeds that of other firms comparable in capital intensity and risk.[99] This is
similar to one of the types of evidence the Guidelines call for in analyzing
market performance in "intermediate" cases.[100] If neither of the merging
firms shows high profits, then DOJ can assume that neither firm is suc-
cessfully exercising market power; DOJ therefore may use the prevailing
price as the baseline for defining the market.

If, however, one or both of the merging firms shows unusual profitabil-
ity, then DOJ should proceed to the second level of inquiry: It must deter-
mine whether the excess profits are the result of market power or merely
the result of lower-than-average costs brought about by superior effi-

94. *See* 1984 Guidelines § 3.45.
95. *See id.*
96. *See id.* § 3.11(b), (c).
97. *See supra* pp. 680, 682–83.
98. DOJ technically cannot examine the performance of the entire market until it has defined the
market. There are, however, certain characteristics of the merging firms, discussed below, from which
DOJ can to some degree infer the performance of the overall market—whatever the market turns out
to be.
99. Although excess profits do not necessarily imply that a firm is exercising market power, *see*
Schmalensee, *Another Look at Market Power*, 95 HARV. L. REV. 1789, 1805–06 (1982), excess profits
usually accompany the successful exercise of such power. Hence the absence of excess profits generally
indicates that a firm does not possess market power.
100. *See* 1984 Guidelines § 3.45(c) (profitability of leading firms in an industry).

ciency. Again, the Guidelines themselves may facilitate this analysis because they suggest additional types of indirect evidence of market power, to be used in "intermediate" cases, which do not require prior definition of the market. This evidence includes past involvement by the merging firms in price-fixing or customer allocation;[101] the presence of such "facilitating practices" as mandatory delivered pricing, exchange of price or output information with other firms, or price protection clauses;[102] and the availability within the industry of information about specific transactions and about buyer characteristics.[103] If, as a result of this second stage of inquiry, DOJ is convinced that the unusual profits are the result of efficiency rather than market power, then DOJ may infer that the prevailing price is competitive. It therefore may use the prevailing price as the baseline for defining the market and proceed with its usual analysis.

On the other hand, if DOJ determines that profits are high because of market power, then any concentration data obtained using the prevailing, supra-competitive price would be misleading. Accordingly, DOJ should adopt one of two approaches. First, it might simply analyze the merger under the Guidelines' other criteria[104] without relying on concentration measures. Alternatively, it might attempt to estimate the competitive price, use it as a baseline for defining the market, and then employ its usual concentration analysis.[105] Literature on predatory pricing suggests that there are feasible methods for determining average total cost,[106] which is a good proxy for the long run competitive price.[107] Courts have used this approach in predatory pricing cases,[108] and the DOJ and FTC, with their

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101. *See* 1984 Guidelines § 3.44(a).

102. *See id.* § 3.44(b).

103. *See id.* § 3.42. Schmalensee suggests two additional indications of market power: price discrimination and predation. *See* Schmalensee, *supra* note 99, at 1806-07.

104. *See supra* text accompanying note 30. Although some of these criteria require that DOJ have at least some idea what the "true" market is, DOJ can apply these criteria to the merger without necessarily adopting a single definition of the market. It might, for example, apply each criterion to the merger under a variety of plausible assumptions about the size of the market in which the merging firms compete.

105. As yet another alternative, DOJ also may decide to initiate a § 1 price fixing suit against the merging firms. But such a suit might not obviate the need for DOJ to challenge the merger. DOJ might lose its § 1 suit because of poor advocacy or incompetent judging, or it might fail to obtain a sufficiently strong remedy.

106. *E.g.*, Joskow & Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L.J. 213, 252-53 & n.79 (1979) (arguing that pricing below average total cost should be presumptively predatory, and suggesting how to determine when this has occurred).

107. Average total cost is a good proxy for the long run competitive price because, according to Joskow and Klevorick, "[i]n a competitive market, the equilibrium market price will equal the average total cost of production, including a normal rate of return on capital invested, and this will, in turn, equal long-run marginal cost." *Id.* at 252-53.

108. In Pacific Eng'r & Prod. Co. v. Kerr-McGee Corp., 551 F.2d 790 (10th Cir.), *cert. denied*, 434 U.S. 879 (1977), the dominant firm in an industry, accused of predatory pricing, was found to have held its price below average total cost but above both marginal cost and average variable cost. *See* 551 F.2d at 792, 797. The court found no violation, however, on the ground that the firm simply had

staffs of economists and other antitrust specialists, may be able to conduct such a study before determining whether to challenge a merger. The important point, however, is that an enforcement agency should not place any merger within a "safe harbor" or "unlikely to challenge" category without first ascertaining that the merging firms are charging a competitive price.

B. *Costs Versus Benefits*

The costs of obtaining the data necessary to implement this two-stage inquiry should not be prohibitive. The suggested approach does not necessarily require that DOJ undertake the costly, time-consuming task of estimating the competitive price. And, as previously noted, the Guidelines already call for most of the required information.[109]

The benefits of the proposed approach outweigh these costs. Implementation of the proposal promises two substantial benefits. First, it will help DOJ make better enforcement decisions. Second, it will remove the perverse incentives created by the Guidelines' present leniency toward mergers between colluding firms. The Guidelines' faulty market definition procedures permit and encourage such firms to merge as soon as the firms succeed in maintaining a supra-competitive price.[110] The faulty procedures, therefore, may help to entrench market power, making the affected industries perform less competitively.[111] Since cartel behavior—especially tacit collusion—may be widespread,[112] the Guidelines' faulty procedures might contribute to the legal monopolization of large sectors of the economy, which in turn would impose substantial costs upon consumers.[113]

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engaged in price competition in the face of excess capacity. *Id.* at 796-97. *See also* William Inglis & Sons Baking Co. v. ITT Continental Baking Co., 668 F.2d 1014, 1035-36 (9th Cir. 1981) (establishing rule that, if defendant's prices are below average total cost but above average variable cost, plaintiff has burden of showing that defendant's prices were predatory), *cert. denied,* 459 U.S. 825 (1982); Transamerica Computer Co. v. IBM, 698 F.2d 1377, 1388-89 (9th Cir.) (holding that IBM's prices for peripheral equipment were above average total cost, and were therefore presumptively not predatory), *cert. denied,* 104 S. Ct. 370 (1983).

109. *See supra* pp. 690-91.

110. *See supra* pp. 685-86.

111. Ordover & Willig, *The 1982 Department of Justice Merger Guidelines: An Economic Assessment,* 71 CALIF. L. REV. 535, 543 (1983) ("increased concentration stabilizes noncompetitive behavior in markets that already do not function well").

112. *See, e.g.,* R. POSNER, *supra* note 13, at 41 (because courts and enforcers focus on evidence of overt conspiracy rather than economic evidence of collusion, "much serious price fixing may escape detection altogether").

113. *See id.* at 8-22 (theoretical discussion of social costs of monopoly); F. SCHERER, *supra* note 5, at 14-21 (same); *id.* at 459-64 (attempts to measure social costs of monopoly and cartelization empirically).

The fear that members of a cartel might try to stabilize their pricing arrangements through merger, moreover, is more than theoretical. This has occurred a number of times during American history. Examples are the steel, tobacco, motion picture, tin, and corn refining industries. *See* 1 S. WHITNEY, ANTITRUST POLICIES 257-59 (1958); 2 S. WHITNEY, ANTITRUST POLICIES 14-15, 146-47, 197, 258-60 (1958).

CONCLUSION

Aristotle once warned that "a small initial deviation from the truth multiplies itself ten-thousandfold as the argument proceeds."[114] A seemingly minor error in the DOJ Merger Guidelines has potentially serious consequences: When DOJ uses them to analyze certain mergers between firms charging supra-competitive prices, the Guidelines' present failure to use the competitive price as a baseline for defining the market artificially lowers market shares and concentration. This leads DOJ to underestimate the anti-competitive consequences of the merger and hence reduces the likelihood of a DOJ challenge. The Guidelines thereby encourage colluding firms to merge by giving them a way of abrogating the two primary threats to their ability to charge supra-competitive prices: price-fixing challenges and the market forces that make cartels inherently unstable.

Since a merger that abrogates these threats lessens competition within the meaning of the Clayton Act, DOJ should examine each proposed merger carefully to ascertain whether the merging firms have been charging supra-competitive prices prior to the merger. When it finds evidence of supra-competitive pricing, DOJ should either disregard its concentration data and evaluate the merger under the Guidelines' other criteria, or estimate the competitive price and use that price as the baseline for defining the relevant market. Courts and the FTC should make similar adjustments when applying the Guidelines.

—Gene C. Schaerr

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114. ARISTOTLE, ON THE HEAVENS 33 (W. Guthrie trans. 1939).