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Notes

An Economic Analysis of the 1982 Justice Department Guidelines for Horizontal Mergers

On June 14, 1982, the Justice Department released new guidelines\(^1\) describing the standards the Department will use to determine which mergers it will challenge under section 7 of the Clayton Act\(^2\) and section 1 of the Sherman Act.\(^3\) These new Guidelines, which replace the 1968 Justice Department Guidelines, purport to reflect the Justice Department's announced objective of opposing only those mergers that create or enhance market power,\(^4\) or facilitate its exercise.\(^5\) The Guidelines' emphasis on challenging mergers creating or enhancing market power reveals the Department's desire to protect all mergers that do not noticeably threaten competition.\(^6\) Conse-

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1. Merger Guidelines of the Department of Justice, 2 TRADE REG. REP. (CCH) ¶ 4500 (June 14, 1982) [hereinafter cited as Guidelines].
2. Section 7 of the Clayton Act states:
   No person engaged in commerce or in any activity affecting commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital . . . [or] . . . assets of another person engaged also in commerce or in any activity affecting commerce, where in any line of commerce or 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. 15 U.S.C. § 18 (1976 & Supp. IV 1980).
3. Section 1 of the Sherman Act provides in part: “Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal.” 15 U.S.C. § 1 (1976 & Supp. IV 1980).
4. Market power exists when a firm or group of firms can profitably maintain a selling price above the competitive level. In the absence of market power, a firm that increased prices above the competitive level would lose customers to other firms and have lower profits. Thus, any firm can raise prices above the competitive level, but only those with market power can maintain these higher prices profitably. See Landes & Posner, Market Power in Antitrust Cases, 94 HARV. L. REV. 937, 937 (1981). See generally 2 P. Areeda & D. Turner, ANTITRUST LAW ¶ 501 (1978); C. Kayser & D. Turner, ANTITRUST POLICY 76 (1959).
5. Guidelines, supra note 1, ¶ 4501.
6. See Guidelines, supra note 1, ¶ 4501. This desire to protect economically efficient mergers reflects the current Justice Department view that economic efficiency is the goal of U.S. antitrust policy, a view which has also surfaced in the Sixth Circuit. See Marathon Oil Co. v. Mobil Corp., 669 F.2d 378, 381 (6th Cir. 1981) cert. denied, 455 U.S. 982 (1982). Judge, then Professor, Rich-
quentely, in contrast to the 1968 Guidelines, which almost exclusively relied on firm concentration and market share data, the new Guidelines take into account a wide array of structural and behavioral factors.

The view that economic efficiency should be a principal concern of merger policy is a relatively recent development; enforcement traditionally attempted to protect competition through policies aimed at assuring a large number of small competitors in the market. This traditional approach to merger analysis is evident in the Supreme Court's early decisions under the amended section 7, decisions evincing hostility to any horizontal merger that created more than a de minimis increase in concentration in the relevant market. Like the discarded 1968 Guidelines, these early cases focused almost exclusively on concentration ratios and market shares to assess the competitive effect of a horizontal merger.

Prior to the development of the new Guidelines, the Burger Court appeared to have adopted a more sophisticated approach to merger analysis that emphasized the effect of a proposed merger on competition rather than on competitors. This new approach continues to rely on market share analysis, but such analysis no longer ends the inquiry if the proponent of the merger can offer evidence of other structural characteristics that lessen the significance of market shares.

The shift in judicial focus unveiled by the Burger Court, coupled with the relatively few merger cases it has decided, has left merger law in an unsettled state. For example, the kinds of


7. In debating the 1950 Celler-Kefauver Amendment to section 7, which tightened the restrictions on mergers, Congress evinced a view of merger law as a means of protecting small businesses from takeovers by corporate giants. See 95 Cong. Rec. 11494-95 (1949). Professor Derek Bok noted that the "curious aspect of the debates [was] the paucity of remarks having to do with the effects of concentration on prices, innovation, distribution, and efficiency." Bok, Section 7 of the Clayton Act and the Merging of Law and Economics, 74 Harv. L. Rev. 226, 236 (1960). But see 95 Cong. Rec. 11493 (1949) (statement of Mr. Yates that oligopolists might "adopt a live-and-let-live policy toward each other at the sacrifice of their efficiency and their progress").

8. See infra notes 57-64 and accompanying text.


10. See United States v. General Dynamics Corp., 415 U.S. 486, 498 (1974). See also infra text accompanying notes 75-77 (court considers history and probable future of competition in the industry) and note 189 (showing the ambiguity in the Supreme Court approach to mergers).
evidence that will overcome a showing of undue concentration and market shares caused by a merger still remain unresolved. Similarly, the extent of concentration caused by a merger that will give rise to a prima facie case is not clear. The absence of guidelines in the cases, together with the lack of a definitive economic theory to assess the effects of a merger, enabled the Justice Department to exercise a great deal of discretion in drafting its own standards for identifying those mergers it deems to be anticompetitive. Businesses that dispute the Department’s assessment of a merger therefore will have almost no Supreme Court decisions on which to rely and, consequently, will have no recognized alternative to the Department’s method of analysis. Thus, the 1982 Merger Guidelines take on particular significance; the Department’s method of analysis, rather than one defined by the courts, will invariably be the yardstick by which all potential mergers are measured.

Specifically, this Note examines the horizontal merger aspects of the 1982 Justice Department Guidelines. Part I explains the structure-conduct-performance paradigm of industrial organization and examines the applications and limitations of economic theory to merger analysis. Part II reviews the 1968 Guidelines and the need to replace them, while Part III assesses the new Guidelines and their basis in economic theory. Part III concludes that the 1982 Guidelines tend to obscure rather than illuminate those mergers that are potentially anticompetitive, thus offering little guidance for firms seeking to avoid antitrust litigation. Part IV offers an alternative to the 1982 Guidelines, based on more readily available information, more relevant economic theory, and more realistic assumptions regarding management behavior.

I. THE APPLICATIONS AND LIMITATIONS OF ECONOMICS TO MERGER ANALYSIS

A horizontal merger may benefit society by increasing economic efficiency, it may have no net effect on societal wel-

11. This Note does not address the market definition difficulties with the 1982 Guidelines. See infra notes 165, 172. Rather, it examines the issues inherent in an application of the Guidelines’ horizontal merger analysis to a proposed merger where the market has been agreed upon or defined. Errors in the market definition enter this analysis only to the extent that the new Guidelines may compound the effects of such errors. See infra notes 165-69 and accompanying text.

12. The Supreme Court has recognized that a horizontal merger may increase efficiency by allowing two small firms to merge into a firm more capable of competing with larger rivals. See Brown Shoe Co. v. United States, 370 U.S.
or it may cause detrimental effects by facilitating collusion and the exercise of market power. Section 7 of the Clayton Act is designed to prevent mergers of the last type—those which tend to "lessen competition" or "create a monopoly." Consequently, merger analysis is useful only to the extent it can accurately predict the postmerger competitiveness of an industry from data available before the merger occurs. In the language of economic theorists, this predictive process involves three aspects of industrial organization: structure, conduct, and performance.

The "market structure" of an industry refers to external conditions that affect the way a firm determines output and price. These conditions include the number and size of firms in the industry, barriers to entry, cost functions, and product differentiation. "Conduct" refers to firm behavior, or the types of output and pricing decisions the firm makes. Examples of conduct include competitive pricing, price fixing, and tying agreements. "Performance" refers to the results of

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294, 319 (1962). For example, assume two small beer producers compete in the same market area against, among others, larger firms. By merging into one firm, the companies may economize on expenses associated with management, purchasing, advertising, research, production, and marketing. Although the beer industry for this area would have one less competitor after the merger, the new firm, with lower costs, may offer greater competition to the larger firms and thus result in lower prices for consumers. Such cost savings are referred to as "efficiencies." See D. Armentano, Antitrust and Monopoly: Anatomy of a Policy Failure 232 (1982). See also Williamson, Economics as an Antitrust Defense: The Welfare Tradeoffs, 58 AM. ECON. REV. 18 (1968) (asserting that the efficiencies of some mergers may outweigh their anticompetitive impacts).

13. No net effect on societal welfare means, in the economic sense, that the industry is neither more efficient nor more prone to the exercise of market power and collusion after the merger. Although the neutral efficiency impact of a merger may result from management's inaccurate estimates of resulting efficiencies, such mergers might also be motivated by considerations unrelated to efficiency or monopoly, such as income tax or income-tax-related estate-planning reasons. See R. Posner, Antitrust 397-98 (1974).


17. See F. Scherer, supra note 15, at 4. Barriers to entry are factors which affect the relative difficulty that a new firm encounters in entering the industry. See E. Mansfield, Microeconomics: Theory and Applications 351-53 (4th ed. 1982). Product differentiation refers to consumers perceiving the relative value of a product differently, so that some consumers are willing to pay more for a given product or brand than other consumers. See F. Scherer, supra note 15, at 375-76.


19. See id. at 59.
market interaction in a given industry and whether that outcome is socially desirable. It entails an examination into such market results as the relation of price to costs in an industry, responsiveness of price to changes in demand or supply, adequacy of resources allocated to an industry, and the condition of technology employed by an industry. Performance goals include efficient use of resources, progress, stable growth, and an equitable distribution of income.

This basic paradigm of industrial organization holds that there is a causal relationship between structure and conduct, and between conduct and performance in an industry. Under this theory, market structure, together with the basic conditions of supply and demand, limits the range of possible conduct which, ultimately, will affect industry performance. If an industry contains many small firms producing the same product (structure), then the firms will compete because of the difficulty of collusion among so many firms (conduct), and the industry will produce the socially desirable output and charge a price equal to cost (performance). If, on the other hand, an industry contains only five firms (structure), these firms may realistically conspire together to fix prices (conduct), which will result in supracompetitive prices and restricted output (performance).

Economics provides accurate predictions about likely firm

22. Professors Kaysen and Turner list the performance goals as:
   (1) efficiency in the use of resources—the achievement of the largest bundle of desired outputs from the available bundle of resources;
   (2) progress—growth of total output and of output per head and development of new cheaper production methods and new improved products;
   (3) stability in output and employment—growth at a relatively stable rate, rather than with large fluctuations; and
   (4) an equitable distribution of income.
C. Kaysen & D. Turner, supra note 4, at 11. Although the performance goals sometimes conflict with each other, the efficiency and progress goals are met when competitive industries produce the socially optimal output and make no economic profits. See P. Areeda & D. Turner, supra note 4, ¶ 402.
25. Assume that CP represents the competitive price and dd represents the market demand curve in Figure 1. If the industry contains many small firms acting competitively, the firms will charge CP and sell E units of the good. If the market contains only five firms and they collude and fix the price at FP, then only O units of the good will be sold. See P. Wonnacott & R. Wonnacott, Economics 50-61 (1979).
behavior and thus about likely industry performance—the aspect of the market with which antitrust analysis is concerned— in a perfectly competitive structure. Perfect competition presupposes a relatively large number of small buyers and sellers trading in the product, a homogenous product, no barriers to entry, and perfect knowledge. With no barriers to entry, new firms enter whenever economic profits appear. This entry increases the quantity supplied at each price, lowers the equilibrium price, and forces new and old firms to use the most efficient plant size and methods. Because each firm produces only a fraction of total industry output, no firm will have power over price and each will realize that its output decisions cannot affect the market price. As a result, each firm in a competitive market will take the market price as given and vary its output solely to maximize its profits.

![Figure 1](image_url)

26. The Supreme Court has defined “competition,” the goal of the antitrust laws, in terms of the efficiency and progress goals of performance. The Sherman Act reflects a legislative judgment that ultimately competition will produce not only lower prices, but also better goods and services. “The heart of our national economic policy long has been faith in the value of competition.” Standard Oil Co. v. FTC, 340 U.S. 231, 248. The assumption that competition is the best method of allocating resources in a free market recognizes that all elements of a bargain—quality, service, safety, and durability—and not just the immediate cost, are favorably affected by the free opportunity to select among alternative offers.


27. See E. Mansfield, supra note 17, at 248-49.


29. See E. Mansfield, supra note 17, at 254-58.

30. Economists refer to this concept as “price taking.” If a firm refuses to take the price set by the market and tries to raise the price for its product above the market price, the firm will lose all its customers to other firms. See E. Mansfield, supra note 17, at 248, 251.
at the given price. To maximize profits, a competitive firm will continue to produce until the marginal cost of the last item produced equals the market price. As each firm in a competitive market seeks to maximize profits, the total output of the industry will settle at the point where the aggregate marginal cost curve intersects the industry demand curve. Thus, in a competitively structured market, firms behave competitively and produce the socially optimal output at a price equal to their economic cost.

Economics also permits prediction about the likely behavior of a monopolist. A monopoly, the structure opposite that of perfect competition, exists when a single firm produces the entire industry output, no perfect substitutes for the monopoly product are available, and substantial barriers prevent entry by other firms. Since one firm controls the entire industry output, it will recognize that it has power to alter the market price by varying its output. In an effort to maximize profits, the monopolist will restrict output to achieve a price which will clear the market at a point on its demand curve above its marginal costs. Thus, a monopoly virtually dictates market behavior resulting in restricted output and prices in excess of marginal costs. Monopoly performance results in a welfare loss, since buyers are willing to pay more for the last unit of output than

31. See id. at 214-16, 251.
32. Id. at 214-16.
33. Id. at 251-55.
34. Economists define the socially optimal output as that output where the amount that someone is willing to pay for the last unit of output equals the additional cost incurred to produce that unit. See id. at 447-49; P. Wonnacott & R. Wonnacott, supra note 25, at 437-41, 463-65.
35. See E. Mansfield, supra note 17, at 254-58, 447-49.
37. A monopolist maximizes profits where marginal revenue (MR) equals marginal cost (MC). In Figure 2, marginal revenue equals marginal costs at an output of Q units. The monopolist charges a price of P, has total costs represented by area OEBQ, and enjoys profits of PABE. See E. Mansfield, supra note 17, at 281-94.
the cost to the monopolist of producing it.38

Economists can measure the existence of market power, and thus gauge the likely performance effects in an industry structured according to the competitive or monopoly model, using a formula suggested by Professor A. P. Lerner.39 The Lerner index measures market power by the divergence between price and marginal cost as a percentage of price.40 Although marginal cost is usually impossible to determine,41 the Lerner

![Figure 2](image-url)

38. A deadweight loss or social welfare loss results because the monopolist reduced output below the competitive output by $S - Q$. See Figure 2, supra note 37. The amount of allocative inefficiency or welfare loss is the amount by which the willingness to pay for this output $(S - Q)$ exceeds the cost of producing it. In Figure 2, the area under the demand curve from $A$ to $D$ represents the willingness to pay for the additional output while the area under the marginal cost curve from $C$ to $D$ is the additional cost. The welfare loss, the amount by which willingness to pay exceeds the cost, is the area of triangle CAD. See P. Wonnacott & R. Wonnacott, supra note 25, at 438-41.

With an accurate estimate of the demand and marginal cost curves, one could calculate the welfare loss as the area between these curves for the output from $Q$ to $S$ in Figure 2. Practically speaking, however, such estimates cannot be made with accuracy. See P. Wonnacott & R. Wonnacott, supra note 25, at 409-12; Landes & Posner, Should Indirect Purchasers Have Standing to Sue Under the Antitrust Laws? An Economic Analysis of the Rule of Illinois Brick, 46 U. Chi. L. Rev. 602, 619-20 (1979).


40. Algebraically, the Lerner index $(LI)$ equals $(P - MC)/P$, where $P$ is the price charged by the firm and $MC$ is the marginal cost—the additional cost incurred to produce the last unit of output. See Lerner, supra note 39, at 169. The Lerner index is most accurate when the firm's marginal cost curve is relatively flat; the index tends to overstate market power if the marginal cost curve is rising and to understate it if the marginal cost curve is falling. See Landes & Posner, supra note 4, at 941.

41. See F. Scherer, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PER-
index can still be derived in a competitively or monopolistically structured market. In perfect competition, which produces the socially optimal output, price equals marginal cost, so that the value of the Lerner index is equal to zero.\textsuperscript{42} In the absence of market power, the market should perform competitively. On the other hand, an industry with only one firm will yield a Lerner index value equal to the inverse of the price elasticity of demand, a measure of the sensitivity of quantity demanded to changes in price.\textsuperscript{43} Where market power exists, elasticity of demand will be greater than one,\textsuperscript{44} and the Lerner index will yield a positive fraction, indicating that the market is performing noncompetitively because price exceeds marginal cost. Thus, in either a perfectly competitive market or a monopoly market, the Lerner index can be derived without computing marginal cost, and economists therefore can predict the likely performance of such markets.

Between perfect competition and monopoly is oligopoly, the market structure characterized by a small number of large firms acting interdependently.\textsuperscript{45} While economic theory can successfully predict firm behavior in competitive and monopolistic markets, no theory regarding oligopolistic behavior has gained general acceptance, thus complicating predictions about the likely performance of such markets.\textsuperscript{46} Most economists,

\textbf{FORMATION 50 (1970)} (marginal cost is difficult to calculate from accounting data).

\textsuperscript{42} Perfectly competitive firms, as price-takers, produce the level of output where price equals marginal cost. See supra note 30 and accompanying text. Consequently, price always equals marginal cost. See E. MANsFIELD, supra note 17, at 250-54.

\textsuperscript{43} See D. NEEDHAM, supra note 15, at 27-28; Landes & Posner, supra note 4, at 946; Schmalensee, \textit{On the Use of Economic Models in Antitrust: The Realemon Case}, 127 U. PA. L REV. 994, 1005 (1979). A monopolist facing a relatively inelastic demand has greater market power than one with a rather elastic market demand. Since Lerner index $P - MC = \frac{1}{E_d}$ where $E_d$ is the elasticity of demand, lower values for the elasticity of demand (i.e., the more inelastic) yield higher values for Lerner index of monopoly power.

\textsuperscript{44} See Landes & Posner, supra note 4, at 961.

\textsuperscript{45} See E. MANsFIELD, supra note 17, at 330.

\textsuperscript{46} A comment made by Jesse Markham twenty-five years ago remains true today:

\textit{[E]conomic analysis may reveal with absolute precision that a given merger reduces the number of independent sellers in a market from 11 to 10 and raises (say) the third largest seller's share of the market from 17 per cent to 20 per cent. However, economic theory cannot predict a priori how much this affects competition, or even whether it affects competition substantially.}

Markham, \textit{Merger Policy Under the New Section 7: A Six-Year Appraisal}, 43 VA. L REV. 489, 491 (1957). See also F. SCHERER, supra note 15, at 151-52, W.
however, believe that oligopolists recognize their interdependence and, accordingly, take into account the reactions of their rivals in making output or pricing decisions.\textsuperscript{47} If oligopolists recognize their interdependence and act accordingly, they may engage in concerted conduct to restrict output and maintain prices, thereby replicating the performance of a monopoly.\textsuperscript{48} On the other hand, conditions may militate toward rivalry and against collusion, so that an oligopoly will behave more like a competitive market than a monopoly.\textsuperscript{49}

Economists presume that oligopolists possess some degree of market power\textsuperscript{50} and that there is some correlation between the number of firms in an industry and the amount of market power of each firm.\textsuperscript{51} Unlike the theories of perfect competition and monopoly, however, no single method exists by which to measure market power or the effect upon it by a merger in an oligopoly. Although a Lerner index could be derived for an oligopoly if each firm's marginal cost functions were known, such data are unavailable in most cases.\textsuperscript{52} Moreover, economists have not been able to devise a short cut to the Lerner index for an oligopoly as they have done for monopolies,\textsuperscript{53} because a summary measure of market power based on information taken from the industry demand curve does not exist with respect to an oligopoly.\textsuperscript{54}

In short, oligopoly theory does not permit assumptions re-

\textsuperscript{47} See E. Mansfield, supra note 17, at 330; P. Wonnacott & R. Wonnacott, supra note 25, at 482.
\textsuperscript{48} See E. Mansfield, supra note 17, at 344-45; P. Wonnacott & R. Wonnacott, supra note 25, at 482.
\textsuperscript{49} See L. Sullivan, supra note 21, at 26.
\textsuperscript{51} See P. Wonnacott & R. Wonnacott, supra note 25, at 480. The term "market share" should not be confused with market power. Market share refers to the percentage of total industry output produced by a firm. See F. Scherer, supra note 15, at 56-57. Market power is the ability of a firm or group of firms to raise price above the competitive level profitably. See supra note 4. A large market share may increase the likelihood that the firm has some market power, but it is not a sufficient condition. For example, barriers to entry are also necessary. See infra text accompanying notes 182-84.
\textsuperscript{52} See F. Scherer, supra note 41, at 50.
\textsuperscript{53} The inverse relationship between demand elasticity and the Lerner index exists only where one firm produces the entire industry demand. See supra notes 39-44 and accompanying text.
\textsuperscript{54} Some economists have suggested methods of deriving a Lerner index for an oligopoly, but these methods rely on unrealistic assumptions of conduct and structure. See infra notes 104-21 and accompanying text.
garding performance from structure alone. Those oligopoly theories that have been developed rely on various assumptions concerning conduct, which are often unrealistic or difficult to confirm in any particular case, in order to predict performance. Despite the limitations of economic analysis in determining the possible competitive effects of a merger of oligopolists, the Justice Department nevertheless grounded the 1982 Merger Guidelines in economic theory, as it did the 1968 Guidelines, by focusing on the structural characteristics that facilitate tacit or express collusion among oligopolists.

II. THE 1968 GUIDELINES AND THE IMPETUS TOWARD NEW GUIDELINES

In United States v. Philadelphia National Bank, the Supreme Court relied on a simplified structural analysis to enjoin a proposed merger between the second and third largest commercial banks in the Philadelphia area. Philadelphia Bank stands for the proposition that a merger creating a firm aggregating an "undue" share of the market and resulting in a "sig-

55. Professor George Stigler of the University of Chicago described the ability of economics to predict oligopoly performance as follows:

Economists have their glories, but I do not believe that the body of American antitrust law is one of them. I rest my fundamental doubts about our influence on antitrust policy on the fact that we have provided precious little tested economic knowledge to guide policy. No one can believe that we have established a precise relationship between concentration and market power. Doctrines such as "shared monopoly," "preemptive product differentiation," and price fixing by interviews with the trade press, have all been proposed by economists and antitrust agencies in the past decade. None is even agreed to generally by economists, let alone tested empirically. The prosecution and defense both find economists to their liking, but that hardly establishes the direction of causation.


56. See generally E. Mansfield, supra note 17, at 330-38; F. Scherer, supra note 15, at 152-68 (review of oligopoly theories and their structure and conduct assumptions). The Cournot theory assumes each oligopolist takes its competitors output as given, regardless of its own output decision. See F. Scherer, supra note 15, at 152. The Edgeworth model assumes that each oligopolist attempts to maximize profits while assuming that its competitors will keep their price constant regardless of its pricing decisions. See E. Mansfield, supra note 17, at 333-35. Chamberlain attempted to correct these theories by assuming that oligopolists considered the likely reaction of their rivals before changing price or output, but his theory only predicts outcome when firms have identical market shares and cost functions. See F. Scherer, supra note 15, at 155-60.


58. The market share of a firm refers to the percentage of total industry output produced by that firm. See F. Scherer, supra note 15, at 56-57.
significant" increase in concentration is prima facie unlawful. In Philadelphia Bank the proposed merger would have aggregated a market share of 30 percent and produced a two-firm concentration ratio of 59 percent, an increase of more than 33 percent. The focus on concentration as the measure of market power continued throughout the 1960's as the Court struck down mergers solely on the basis of concentration and market share data. Shortly before the release of the 1968 Guidelines, the Court decided United States v. Von's Grocery, in which it condemned a merger in which the merging firms had an aggregate market share of only 7.5 percent at the time of the merger in an industry having a postmerger four-firm concentration ratio of 24.4 percent.

Accepting the view that there is a significant correlation between concentration in an industry and the degree of market power exercised therein, the Justice Department issued guidelines in 1968 that mirrored the approach of the Warren Court. Justice Stewart's famous observation, that "[t]he sole consistency . . . is that in litigation under § 7, the Government always wins," illustrated the significance of the Guidelines to busi-

59. Concentration refers to the percentage of total industry sales or assets contributed by the few largest firms. The 1968 Guidelines applied a four-firm concentration ratio, indicating the percentage of market output produced by the four largest firms of a particular industry. See F. Scherer, supra note 15, at 56-57. See also Merger Guidelines of the Department of Justice, 2 Trade Reg. Rep. (CCH) ¶ 4510 [hereinafter cited as 1968 Guidelines].

60. 374 U.S. at 363.
61. Id. at 364-65.
62. In the three years following the Philadelphia National Bank decision, the Supreme Court demonstrated a willingness to accept much lower concentration ratios and market shares as proof of an illegal merger. In United States v. Aluminum Co. of America, 377 U.S. 271, 278 (1964), the Court voided a merger between firms with 27.8% and 1.3% market shares in a market with a four-firm concentration ratio of 76%. Then the Supreme Court moved further below the 30% postmerger market share of Philadelphia National Bank, disallowing a merger in an industry where six firms produced 70.1% of output and the merging firms produced 21.9% and 3.1%. See United States v. Continental Can Co., 378 U.S. 441, 461 (1964). Finally, in United States v. Pabst Brewing Co., 384 U.S. 546, 551-52 (1966), the Court reversed a dismissal of the complaint by the district court and suggested that, in an industry with a 10-firm concentration ratio of 52.6%, a merger which resulted in a new firm with a 4.5% market share violated the Clayton Act.

64. Id. at 281 (White, J., concurring).
65. Correlation is a statistical concept referring to the amount of change in one variable (profits in this case) which can be associated with a change in the second variable (concentration). See D. Freedman, R. Pisani, & R. Purves, Statistics 112-20, 136-37 (1978).
ness in predicting whether the Justice Department would challenge a proposed merger. The 1968 Guidelines differentiated markets by whether they were highly concentrated—four-firm concentration ratios of 75 percent or more—or less concentrated—four-firm concentration ratios of less than 75 percent.67

Within each category, the Guidelines established market share ceilings for parties to a merger, yielding accurate predictions regarding the likelihood that the Justice Department would challenge the proposed merger.68

Reliance on concentration as a measure of the probable performance of an industry also reflected contemporaneous legal and economic thinking.69 In his pioneer study in 1951, Joe S. Bain found a correlation between the concentration ratio and the profit levels of large firms in an industry, a result verified in several later studies.70 In fact, prior to 1968, only one major study had questioned the relationship between the four-firm concentration ratio and profits.71 After 1968, however, criticism


68. In "highly concentrated" industries, the Justice Department would ordinarily challenge mergers where the firms had the following market shares:

<table>
<thead>
<tr>
<th>Acquiring Firm</th>
<th>Acquired Firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>4%</td>
<td>4% or more</td>
</tr>
<tr>
<td>10%</td>
<td>2% or more</td>
</tr>
<tr>
<td>15%</td>
<td>1% or more</td>
</tr>
</tbody>
</table>

In "less highly concentrated" industries, the Justice Department would challenge mergers where the firms held the following market shares:

<table>
<thead>
<tr>
<th>Acquiring Firm</th>
<th>Acquired Firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>5% or more</td>
</tr>
<tr>
<td>10%</td>
<td>4% or more</td>
</tr>
<tr>
<td>15%</td>
<td>3% or more</td>
</tr>
<tr>
<td>20%</td>
<td>2% or more</td>
</tr>
<tr>
<td>25%</td>
<td>1% or more</td>
</tr>
</tbody>
</table>

In both categories, the Department would interpolate percentages not shown in the table. *1968 Guidelines, supra* note 59, ¶ 4510 at 6884. The Department would also challenge a merger regardless of the market share analysis if the market showed a trend toward concentration or the acquired firm had been unusually competitive or "disruptive." *Id.*


of the Guidelines and the relationship between the four-firm concentration ratio and performance increased. In a 1971 article critical of Bain's findings, Professor Yale Brozen challenged the existence of any market power relationship between concentration and profits, and instead attributed supracompetitive profits in concentrated industries to market disequilibrium and economies of scale.\textsuperscript{72} Richard A. Posner and George J. Stigler agreed with Bain that there was some correlation between concentration and market power, but would have substituted the Herfindahl index as a more appropriate indicator.\textsuperscript{73} Nearly all critics, including Posner and Stigler, stressed, however, that concentration ratios and market shares, by themselves, do not accurately reflect the effect of concentration on performance.\textsuperscript{74}

In response to academic criticism, or perhaps as a result of a change in the composition of the Court, the Burger Court markedly altered the evidentiary standard for proving a merger's effect on performance. In \textit{United States v. General Dynamics Corp.,} \textsuperscript{75} the Court moved the emphasis away from simple structural analysis of mere concentration and market share data and indicated that it would consider other structural variables including the history and probable future of competition in the industry.\textsuperscript{76} Market share evidence may still establish a prima facie case against a merger, but other economic factors are now clearly relevant in assessing the effects of a merger.\textsuperscript{77} The shift in approach by the Court, combined with changes in

\textsuperscript{72} Market disequilibrium refers to the short-run phenomenon when economic profits may exist in a perfectly competitive market until new firms enter or current producers expand their plant capacity. Economies of scale is the concept that large firms may produce a good more efficiently than smaller firms. Thus, in a market with large and small firms, small firms may just break even while the large firms enjoy profits. \textit{See} Brozen, \textit{Bain's Concentration and Rates of Return Revisited,} 14 J. L. & ECON. 351, 351-52, 362-66 (1971). \textit{See also} Demsetz, \textit{Industry Structure, Market Rivalry, and Public Policy,} 16 J. L. & Econ. 1, 1, 8-9 (1973) (suggesting that concentration reflects the cost superiority of large-scale firms).


\textsuperscript{75} 415 U.S. 486 (1974).

\textsuperscript{76} \textit{Id.} at 498.

economic thinking and Justice Department philosophy, brought the 1968 Guidelines into disrepute.

III. THE 1982 GUIDELINES FOR HORIZONTAL MERGERS

A. THE ECONOMIC BASIS OF THE 1982 GUIDELINES

The 1982 Guidelines respond to the criticism leveled against the 1968 Guidelines by adopting a broad-based approach to market power analysis that involves examining a number of structural, behavioral, and performance factors tending to make collusion among firms easier. But the revised Guidelines do not wholly abandon the simplified structural analysis of their predecessor, for in some cases concentration and market share data alone still determine the Justice Department's likely response to a proposed merger.

1. An Overview of the 1982 Guidelines

In assessing a merger, the Guidelines indicate that the Department will first attempt to construct the relevant product and geographic market in which to evaluate the merger's effects by using the economic concept of cross-elasticity of demand. The object is to find that group of products and geographic area in which a hypothetical monopolist could raise prices profitably—in other words, a product and geographic market which includes all products with a significant cross-elasticity of demand to the merging firms' product.

The Department will evaluate the merger within this hypothetical market by computing the postmerger market concentration and the increase in concentration resulting from the merger, using the Herfindahl-Hirschman Index (HHI). The Guidelines group markets into three categories according to their HHIs. Markets having an HHI below 1,000 are characterized as "unconcentrated," those having an HHI between 1,000

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79. See infra text accompanying notes 84-85, 87.

80. See Guidelines, supra note 1, ¶ 4502.10.

81. Id. See also infra note 165, 172.

82. For an explanation of the Herfindahl-Hirschman Index, see infra note 96. See also notes 93-125 and accompanying text.
and 1,800 are described as "moderately concentrated," and those having an HHI above 1,800 are considered "highly concentrated."83

The Department is not likely to challenge any merger in an unconcentrated market.84 It is also unlikely to challenge any merger in a moderately concentrated market if the increase in HHI caused by the merger is less than 100 points.85 If the increase exceeds 100 points, the Department will consider other factors86 in determining whether to contest the merger. The Department will challenge mergers in highly concentrated markets if the increase in HHI exceeds 100 points, but will not challenge mergers where the increase is less than 50 points.87

83. See Guidelines, supra note 1, ¶ 4503.10.
84. Id. ¶ 4503.101.
85. Id. ¶ 4503.101. The merger of two firms in an industry increases the Herfindahl-Hirschman Index by twice the product of their market shares. See infra note 96. Therefore, in a moderately concentrated industry, the Department will allow mergers between firms with the following market shares:

<table>
<thead>
<tr>
<th>Acquiring</th>
<th>Acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>15%</td>
<td>3.3%</td>
</tr>
<tr>
<td>20%</td>
<td>2.5%</td>
</tr>
<tr>
<td>25%</td>
<td>2%</td>
</tr>
</tbody>
</table>

The headings "acquiring" and "acquired" merely facilitate comparison with the 1968 Guidelines. See supra note 68. Because the market share criteria are given in terms of increases in the HHI, the acquisition of a large firm by a firm with a small market share would also violate the Guidelines if twice the product of their market shares exceeded 100.

86. For a discussion of the Guidelines' other factors, see infra notes 126-49 and accompanying text.
87. See Guidelines, supra note 1, ¶ 4503.101. Thus, in a highly concentrated industry, the Justice Department is likely to allow mergers between firms with the following market shares:

<table>
<thead>
<tr>
<th>Acquiring</th>
<th>Acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>4%</td>
<td>6.2%</td>
</tr>
<tr>
<td>10%</td>
<td>2.5%</td>
</tr>
<tr>
<td>15%</td>
<td>1.7%</td>
</tr>
<tr>
<td>25%</td>
<td>1%</td>
</tr>
</tbody>
</table>

At the other extreme, the Justice Department would probably challenge any merger where the merging firms had market shares of at least the following:

<table>
<thead>
<tr>
<th>Acquiring</th>
<th>Acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>4%</td>
<td>12.5%</td>
</tr>
<tr>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>15%</td>
<td>3.3%</td>
</tr>
<tr>
<td>25%</td>
<td>2%</td>
</tr>
</tbody>
</table>

The allowable mergers are determined by the firms' market shares, not by any distinction as to which firm is "acquiring" and which is "acquired." Those headings merely facilitate comparison with the 1968 Guidelines. See supra note 68.
Where the increase is between 50 and 100 points in a highly concentrated market, other factors will determine the Department's response. In addition to the above categories in which a challenge is likely, the Department is also likely to contest any merger involving a firm with a market share of at least 35 percent seeking to merge with a firm having a market share of at least 1 percent.

The Guidelines indicate that the HHI thresholds of 1,000 and 1,800 correspond to four-firm concentration ratios of about 50 percent and 70 percent respectively, so that the highly concentrated market is roughly comparable to that of the 1968 Guidelines. On the other hand, the HHI increases allowed by the new Guidelines are substantially more lenient than those that would have been permitted under the former Guidelines.

The liberalization of the standards, however, is in keeping with the theme of the new Guidelines—avoiding interference with beneficial and neutral mergers, while challenging only those that are competitively harmful.

### 2. The Herfindahl-Hirschman Index

The most dramatic change effected by the 1982 Guidelines is the substitution of the Herfindahl-Hirschman Index for the four-firm concentration ratio as the principal measure of market power. This change improves merger analysis for several reasons. The four-firm concentration ratio, technically referred to as a “discrete” measure of concentration, reflects only the shares of the top four firms and gives no consideration to their relative sizes. The HHI, on the other hand, serves as a “sum-

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88. See Guidelines, supra note 1, ¶ 4503.101.
89. Id. ¶ 4503.102.
90. Id. ¶ 4503.10. See supra text accompanying note 67. See also J. Zuckerman, A Walk Through the Merger Guidelines 9 (June 18, 1982) (available from United States Department of Justice). The 1000 threshold corresponds to an industry with ten equal size firms while the 1800 level falls between the equivalent of an industry with five equal size firms and one with six such firms. See infra note 99.
91. Compare supra notes 85 (merger in a moderately concentrated industry under new Guidelines) and 87 (highly concentrated industry) with note 68 (merger in a highly concentrated industry under 1968 Guidelines).
92. See supra note 6 and accompanying text.
93. Prior to the release of the 1982 Guidelines, most authors referred to this index as the Herfindahl index. See, e.g., Posner, supra note 73, at 1602; Stigler, supra note 73, at 261. The Justice Department has recognized Hirschman's claim of discovering the index and gives him equal billing. For Hirschman's history of the Herfindahl-Hirschman Index, see Hirschman, The Paternity of an Index, 54 AM. ECON. REV. 761 (1964).
mary” index that computes concentration as the sum of the squares of the market share of each firm in the industry rather than merely the sum of the market shares of the four largest firms. Moreover, because the HHI squares the market shares, it weights larger firms, which probably have greater influence on market behavior, more heavily than very small firms, which have virtually no effect on market behavior. The HHI, as a summary index, thus allows comparisons between industries with the same four-firm concentration ratios based on the distribution of shares among the firms in each industry.

In addition to being a summary index the HHI also functions as a “relative” concentration measure, reflecting the degree of inequality of firm size in an industry. Everything else

95. See id. at 125.
96. Mathematically, \( \text{HHI} = \sum_{i=1}^{n} (s_i)^2 \), where \( n \) is the number of firms in the industry and \( s_i \) is the market share of the \( i \)th firm. See id. Although most economists use the decimal value of the market shares so that the Herfindahl-Hirschman Index ranges from 0 to 1, the Department chose to eliminate any confusion with decimals and therefore uses market shares as whole numbers. See Guidelines, supra note 1, ¶ 4503.10 n.29. With the Department’s methodology, the HHI could range from 0 to 10,000. For example, a market containing five equal size firms has an HHI of \( (20)^2 + (20)^2 + (20)^2 + (20)^2 + (20)^2 = 2000 \). If the market contains eleven firms with market shares of 35, 25, 15, 10, 5, 2, 2, 2, 2, 1, and 1, the HHI is \( (35)^2 + (25)^2 + (15)^2 + (10)^2 + (5)^2 + (2)^2 + (2)^2 + (2)^2 + (2)^2 + (1)^2 + (1)^2 = 2218 \).

Because the HHI weighs the market share of each firm, it reflects the change in concentration caused by the merger. For a merger of two firms in an industry, the HHI increases by twice the product of their market shares. For example, if firm A has a market share of \( a\% \) and firm B has a share of \( b\% \), before the merger the HHI includes these two firms as \( a^2 + b^2 \). If the firms merge, they form a new firm with a market share of \( (a + b)^2 = a^2 + b^2 + 2ab \). Since the premerger HHI includes \( a^2 + b^2 \), the increase in the HHI is \( 2ab \).

97. Assuming some barriers to entry exist, firms with large market shares tend to have some degree of market power, which enables them to influence price. See P. Wonnacott & R. Wonnacott, supra note 25, at 480.
98. Twenty firms with a 1% market share add twenty points \( (20 \times (1)^2) \) to the HHI value; however, one firm with a 20% market share adds four hundred points \( (20)^2 \).
99. See Adelman, Comment on the “H” Concentration Measure as a Numbers Equivalent, 51 Rev. Econ. Statistics 99, 100 (1969). Two industries, one with firms with market shares of 40, 25, 10, 5, 5, 5, 5, and 5 and the other with firms of market sizes 20, 20, 20, 20, 5, 5, 5, and 5, both have four-firm concentration ratios of 80%. The first, however, has an HHI of 2450 while the second has an HHI of 1700.

The inverse of the decimal HHI can also be interpreted as the equivalent number of equal size firms. Thus, the Justice Department threshold of 1000 is equivalent to an industry with \( \frac{1}{1000} \) equal size firms; the 1800 point mark relates to \( \frac{1}{1800} = 5.56 \) equal size firms.

100. See D. Needham, supra note 15, at 126-27.
being equal, industries consisting of relatively equal-sized firms will behave more competitively than those consisting of disproportionately sized firms. Because the HHI is the algebraic equivalent of a formula that includes the standard deviation of firm sizes (a measure of size inequality), a formula that yields larger results the greater the size disparity of firms, the value of the HHI increases as firm disparity increases. For industries with the same number of firms, those with greater market share inequality will have higher HHI values. Consequently, if performance is more dependent on the relative size of firms than on the market share held by the four largest firms, the HHI will more accurately reflect the degree of market power in that industry than will the four-firm concentration ratio.

Whether a discrete, summary, or relative concentration measure is best, however, depends on which aspect of structure actually has the greatest effect on performance, or, more succinctly, which oligopoly theory is correct. Although economics has no generally accepted oligopoly theory, the Herfindahl-Hirschman Index—unlike the four-firm concentration ratio—can be justified under several well-known oligopoly theories.

First, the Cournot-Nash Equilibrium assumptions can be used to establish that the HHI is related to the Lerner index of
Cournot's oligopoly model assumes that each firm in the industry has the same capacity and cost functions, takes the other firms' output as fixed regardless of its own output decisions, and does not coordinate its actions with any other firm. To this must be added the Nash Equilibrium assumption—that no firm can improve its current profits by independent action, or expressed differently, that only cooperation between firms will improve their profits. Under these restrictive assumptions, the value of the Lerner index for the industry will equal the HHI divided by the industry elasticity of demand. Taking this analysis one step further, one can measure the increase in the Lerner index caused by a merger as the increase in the HHI divided by the elasticity of demand. Therefore, if industry structure and conduct resemble the Cournot-Nash Equilibrium assumptions, the increase in the HHI caused by a merger will yield accurate estimates regarding the market power effect of the merger. To the extent that tacit or overt collusion does exist, however, firms presumably will charge higher prices and thereby achieve market power exceeding the Lerner index value in a Cournot-Nash Equilibrium. Thus, the Lerner index measure of performance derived from the HHI reflects the lower limit of market power present in the industry.


105. See E. MANSFIELD, supra note 17, at 331-33. To take the competitors' output as given means that firm A assumes that all other firms will continue to produce the same output regardless of the amount firm A produces. Id. at 331-32. Where these assumptions are true, the firms in the industry will wind up dividing the industry output evenly. Id. at 331-33.

106. See Hause, supra note 104, at 81.

107. Under the Cournot-Nash Equilibrium assumptions the Lerner index of market power for any firm is \( LI_i = \frac{P - MC_i}{P} = \frac{s_i}{E_d} \), where \( s_i \) is the market share of the firm and \( E_d \) is the elasticity of demand for the industry. To obtain a value of the Lerner index for the industry, each firm's Lerner index value is weighted by the market share of the firm. Thus \( \overline{LI} \), the value of the Lerner index for the industry, is \( \overline{LI} = \frac{\sum_i s_i LI_i}{\sum_i s_i} = \frac{\sum s_i^2}{E_d} \). Since \( \sum s_i^2 = HHI \), the industry Lerner index, \( \overline{LI} \), equals \( \frac{HHI}{E_d} \). See Hause, supra note 104, at 79-81.


109. See Hause, supra note 104, at 81. But see Landes & Posner, supra note 4, at 952 (asserting that the Lerner index provides an upper limit on the amount of market power when marginal cost is increasing).

110. See Hause, supra note 104, at 81.
The HHI may also provide a theoretically justifiable measure of market power in an industry containing a few large firms and a competitive fringe. Under this structure, presuming conduct where the large firms split their combined market shares noncooperatively, the Lerner index for the large firms is a function of the HHI and two other structural variables: the market elasticity of demand and the elasticity of supply for the competitive fringe. Again, the increase in the HHI caused by a merger would be proportional, under these assumptions, to the increase in the Lerner index. Thus, in this model, the HHI measure of concentration relates the change in structure from a merger to the resulting effect on market performance. Because collusion would enable the large firms to exercise market power greater than that indicated by the Lerner index value derived from the HHI, this performance estimate would

111. This structure reflects a derivation of the dominant firm theory. In the dominant firm theory, one very large firm produces the bulk of industry output with the remainder coming from a "competitive fringe," a number of small firms with limited production capacity. Under this structure, the demand curve facing the dominant firm consists of the market demand at each price less the quantity supplied by the fringe firms at that price. The dominant firm then acts like a monopolist over this residual demand. See F. Scherer, supra note 15, at 232. Recent literature on market power has assumed a structure of a dominant firm or a number of large firms sharing a dominant share in order to analyze market power or to demonstrate the relationship between market power and the Herfindahl-Hirschman Index. See, e.g., Hause, supra note 104, at 86-87; Landes & Posner, supra note 4, at 944; Ordover, Sykes & Willig, supra note 108, at 1859-66.

112. That is, the large firms will split the portion of the market not produced by the competitive fringe along a Cournot-Nash Equilibrium. See supra notes 104-08 and accompanying text.

113. The Lerner index for the industry is \( \frac{HHI}{E_d - (1 - k) \&} \) where \( E_d \) is the market elasticity of demand, \( k \) is the portion of industry output produced by nonfringe firms, and \( \& \) is the elasticity of supply for the competitive fringe. See Hause, supra note 104, at 86. Ordover, Sykes, and Willig take this analysis one step further by entering a variable for "conjectural variation" which allows them to loosen the noncooperation assumption of Cournot-Nash equilibrium conduct. See Ordover, Sykes & Willig, supra note 108, at 1860.

114. If \( HHI_b \) represents the concentration level before the merger and \( HHI_p \) is the postmerger HHI, then the premerger level of market power is \( \bar{L}I_b = \frac{HHI_b}{E_d - (1 - k) \&} \), and the postmerger level of market power is

\[
\bar{L}I_p = \frac{HHI_p}{E_d - (1 - k) \&}.
\]

As long as no other variables change, the increase in the Lerner index for the industry is

\[
\bar{L}I_p - \bar{L}I_b = \frac{HHI_p - HHI_b}{E_d - (1 - k) \&}.
\]
also yield a lower bound on the market power present in the industry.\textsuperscript{115} Finally, Stigler's theory of oligopoly maintains that there is a relationship between structure, as measured by the HHI, and the likelihood of collusion in a market.\textsuperscript{116} Because any member of a cartel can increase profits if it can reduce its price while the other firms maintain their prices, each oligopolist has an incentive to cheat on a collusive agreement.\textsuperscript{117} This incentive is tempered by the knowledge that detection of the cheating will cause the other firms to reduce price and, consequently, leave all firms worse off than if they had kept the collusive agreement.\textsuperscript{118} Thus, a firm will find cheating profitable only if the other colluders do not detect the cheating.\textsuperscript{119} Starting with this cartel theory, Stigler hypothesized that industries with many small firms are less likely to sustain a collusive agreement without cheating than more concentrated industries with only a few firms. Stigler maintained that this likelihood could be expressed as a function of the Herfindahl-Hirschman Index of concentration—the higher the HHI, according to Stigler's theory, the greater the probability of successful collusion.\textsuperscript{120} Stigler concluded that the HHI is an appropriate measure of concentration so long as the probability of successful collusion remains a concern of merger policy.\textsuperscript{121}

Economists, in general, favor the Herfindahl-Hirschman Index not only because it has some theoretical justification but also because it has shown a somewhat better correlation with profits than the four-firm concentration ratio.\textsuperscript{122} An empirical study of the effects of bank concentration found that the HHI measure of concentration predicted whether banks obtained more favorable loan terms and interest rates.\textsuperscript{123} In a study of

\begin{itemize}
  \item \textsuperscript{115} See Hause, supra note 104, at 86-87.
  \item \textsuperscript{116} See Stigler, A Theory of Oligopoly, in The Organization of Industry 41-45 (1968).
  \item \textsuperscript{117} See E. Mansfield, supra note 17, at 344; Stigler, supra note 116, at 42.
  \item \textsuperscript{118} See E. Mansfield, supra note 17, at 346.
  \item \textsuperscript{119} Id.
  \item \textsuperscript{120} Stigler, supra note 116, at 55.
  \item \textsuperscript{121} Id.
  \item \textsuperscript{122} See Stigler, supra note 116, at 59; see also Weiss, supra note 70, at 204-220 (listing 46 studies testing concentration-profits relationship). But see J. Kowka, Federal Trade Commission Staff Report on Market Shares, Concentration, and Competition in Manufacturing Industries 21-24 (1978) (finding slightly better correlations for the Herfindahl-Hirschman Index but warning that the HHI does not perform much better than the conventional concentration ratios).
  \item \textsuperscript{123} Hester, Customer Relationships and Terms of Loans: Evidence from a Pilot Survey, 11 J. Money, Credit & Banking 349, 357 (1979).
\end{itemize}
retail gasoline markets, the correlation between the HHI and price supported Stigler's theory that industries with low HHI values would succumb to the temptation of cheating on collusive agreements before those with high HHI concentration measures. This latter study also found a stronger correlation between the HHI and price when firms competed than when they colluded, a result that the Cournot-Nash Equilibrium would predict.

3. Other Factors

Where postmerger HHI and market share data are inconclusive, the Justice Department will examine a number of other factors before deciding whether to challenge the merger. Ease of entry is the first such factor. The exercise of market power requires some barrier to entry, such as economies of scale, legal rights (patents or licenses), control of inputs, or product differentiation. Rather than estimating these barriers directly, the Department will attempt to predict the extent of new entry that would result—either through production substitution or construction of new facilities—by a hypothetical price hike of five percent on the relevant product. Production substitution refers to the process of adapting existing facilities to produce the "relevant product." If firms in a market collude or exercise market power to raise prices, firms with similar facilities that currently produce a different product have an incentive to switch and produce the more profitable one. A relatively low level of economic profits will induce entry if another firm can make such a shift in production at little

125. Id. at 257. See supra text accompanying notes 104-10.
126. Guidelines, supra note 1, ¶ 4503.30; J. Zuckerman, supra note 90, at 11.
127. Barriers to entry include the cost of minimum efficient plant size, the cost of heavy initial advertising to overcome the product differentiation current producers have built up, and the costs of obtaining natural resources, inputs or patent rights to the extent these costs are higher than those incurred by current producers. See generally E. MANSFIELD, supra note 17, at 351-53 (long-run barriers to entry).
128. See P. AREEDA & D. TURNER, supra note 4, at 299.
129. Guidelines, supra note 1, ¶ 4503.20.
130. See Landes & Posner, supra note 4, at 948. "Relevant product" includes all goods which the court finds to be substitutes for the good produced by the merging firms. See Brown Shoe Co. v. United States, 370 U.S. 294, 325-28 (1962).
131. See Landes & Posner, supra note 4, at 948.
132. Economic profits consist of the amount by which revenues exceed the accounting costs of production plus a normal rate of return on investment. See P. WONNACOTT & R. WONNACOTT, supra note 25, at 424-25.
Entry may also occur by firms constructing new production facilities. De novo entry will have a long-term effect on performance, because the new entrant generally will stay in the market until it depreciates the assets or switches them to a more profitable use. To the extent that de novo entry requires the commitment of expensive long-term assets, potential entrants will require higher, nontransitory profits before entering.134

The inclusion of "ease of entry" criteria represents a departure from past merger analysis. Although Brown Shoe Co. v. United States135 cited barriers to entry as a factor affecting performance, the Supreme Court generally has limited ease of entry analysis to cases involving potential competition.136 Similarly, the 1968 Guidelines gave no consideration to ease of entry in horizontal merger analysis.137 Since economic theory asserts that profits cannot be maintained above competitive levels for any significant period unless some barriers to entry exist, inclusion of this factor in merger analysis represents an improvement over the 1968 Guidelines.

In addition to ease of entry, the Department will also consider other structural factors. One of these is the degree of product homogeneity within the relevant market.138 The more differentiated the products within a market, the more difficulty firms will have coordinating prices.139 If, for example, consumers perceive quality differences between different firms' products, the firms in that market will have to agree on price differentials for the firms' products in order to achieve a stable

133. See F. Scherer, supra note 15, at 60.
134. Businesses are unlikely to invest in expensive, specialized equipment if they believe that economic profits present in an industry are only a short-run phenomenon. See E. Mansfield, supra note 17, at 351-53; P. Wonnacott & R. Wonnacott, supra note 25, at 492.
137. See 1968 Guidelines, supra note 59, ¶ 4510.
138. Guidelines, supra note 1, ¶ 4503.301(a).
139. See 4 P. Areeda & D. Turner, supra note 4, ¶ 919, at 91; F. Scherer, supra note 15, at 200-03.
market equilibrium at an overall higher price level.\textsuperscript{140} Price agreement will be more difficult to achieve as product differentiation increases, since significant product heterogeneity probably indicates that each firm is confronting different demand and marginal revenue curves and therefore will prefer to price at a different level from its rivals.\textsuperscript{141} Conversely, product homogeneity facilitates price agreement among rivals, since the demand and marginal revenue functions of each firm are more likely to be similar.

A second structural factor considered by the Guidelines is the cross-elasticity of demand between the product market and the next-best substitute.\textsuperscript{142} The lower the cross-elasticity of demand at the edge of the product market, the more market power will be present in that market. Thus, a significant gap in consumer perception between the last product included in the relevant product market and the next-best substitute increases confidence in the market definition,\textsuperscript{143} and in the HHI value for that market as well, giving the Department a stronger basis for challenging the merger.

Another factor entering into the Department's calculus is the ease with which colluding firms in the market can detect cheating.\textsuperscript{144} The existence of detailed price information or a system that publishes bids and specifications can reveal cheating and thus make a collusive agreement easier to police.\textsuperscript{145} Colluding firms can also detect cheating easily if the market contains many small buyers.\textsuperscript{146} Although a firm needs to attract a number of small buyers to make cheating profitable, each additional communication of the lower price increases the probability that the other cartel members will discover the cheating.\textsuperscript{147}

\textsuperscript{140} See F. Scherer, supra note 15, at 200-03; Stigler, supra note 116, at 41.
\textsuperscript{141} See F. Scherer, supra note 15, at 158.
\textsuperscript{142} See Guidelines, supra note 1, ¶ 4503.301(b).
\textsuperscript{143} An accurately defined market takes on increased importance in merger analysis using the Herfindahl-Hirschman Index. See infra notes 165-67 and accompanying text.
\textsuperscript{144} Guidelines, supra note 1, ¶ 4503.302.
\textsuperscript{145} See, e.g., Federal Trade Comm'n v. Cement Inst., 333 U.S. 683, 710 (1948) (publication of basing point prices and freight rates enabled cement dealers to submit identical bids); American Column & Lumber Co. v. United States, 257 U.S. 377, 398-99 (1921) (exchange of detailed reports including shipping reports and price information "makes the discovery of price reductions inevitable and immediate"). See also Stigler, supra note 116, at 44-45 (policing of price agreements).
\textsuperscript{146} See Stigler, supra note 116, at 43-44.
\textsuperscript{147} Id.
Finally, the Department will consider nonstructural factors, such as past industry conduct and market performance. Evidence of past collusion or pricing policies and market performance tending to indicate collusive conduct increases the probability that collusion will occur under the more concentrated postmerger structure.

B. PROBLEMS WITH THE ECONOMIC APPROACH OF THE 1982 GUIDELINES

The 1982 Guidelines create a number of problems for the business community, for courts, and for antitrust practitioners. While the Herfindahl-Hirschman Index cures some of the deficiencies of the four-firm concentration ratio, it is not necessarily a better predictor of oligopoly performance. In addition, the ease of entry criterion cannot be easily calculated, and the other factors the Department will consider when HHI is inconclusive are not weighted, so their relative importance cannot be assessed. In sum, the Guidelines tend to complicate the process of predicting a Departmental challenge, thereby failing to fulfill the general purpose of merger guidelines.

1. The Herfindahl-Hirschman Index

The Herfindahl-Hirschman Index, although admittedly an improvement insofar as it can measure the change in concentration resulting from any merger, gives the impression of expressing more than it actually does. Although the HHI follows from some restrictive theories of oligopoly, it may not reflect the actual relationship between structure and performance in some industries. The correct choice of a concentra-

148. See Guidelines, supra note 1, ¶ 4503.303-.304.

149. The propensity of firms in an industry to cooperate and fix prices has an effect on the market power present in the industry. Oligopolists behaving under the assumptions of the Cournot-Nash Equilibrium have less market power than if they collude and act like a monopolist. See Ordover, Sykes & Willig, supra note 108, at 1860-63 (analysis of how the propensity to cooperate may affect the Lerner index value for the industry). Evidence of past collusion or competition can allow the Department to assess the tendency of firms to collude and thus indicate whether the Lerner index derived from the HHI underestimates or overestimates the market power present in the industry.

150. See supra notes 96-99 and accompanying text.

151. See supra notes 104-21 and accompanying text.

152. Professor F.M. Scherer, a former director of the Federal Trade Commission’s (FTC) Bureau of Economics, was “just a little bit amused” by the choice of the HHI rather than the four-firm concentration ratio. He compared the choice to picking a sharp scalpel for surgery on something no one understands. Antitrust Practitioners React Favorably to New Merger Guidelines, [Jan.-June] Antitrust & Trade Reg. Rep. (BNA) No. 1070, at 1315, 1316-17
tion measure depends not so much on the oligopoly structure as on the type of conduct assumed. One commentator described the shortcoming of concentration measures as follows:

[W]hat is important [in choosing a concentration measure] is the weight accorded to the number and size distribution of rival firms by decisionmakers in an industry in their decisionmaking. . . . [T]he difference between alternative concentration indexes lies in the weights which they assign to the market shares of firms in an industry. Accordingly, it follows that arguments for a particular concentration measure reflect little more than the proponent's belief that the weighting system inherent in that index reflects the weighting system which is operative in the minds of decisionmakers in industry in practice.

Inherent in the weighting scheme of the HHI is the assumption that firms take all their rivals into account in decisionmaking and give weight to each rival in proportion to its market share. If, instead, the conduct of an industry flows from the dominant influence of a few large firms, or solely from the disparity in firm size, the HHI will yield a distorted picture of likely performance in that industry. Empirical studies differ as to which index best captures the significance of concentration within an industry, with some work indicating that measures other than the HHI may yield better predictions of the level of market power in an industry. Thus, the Herfindahl-

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(June 24, 1982). Professor Kwoka notes that the HHI can be rearranged as

\[ \text{HHI} = \frac{1}{n} + \frac{n}{\bar{s}^2} \sum_{i=1}^{n} (s_i - \bar{s})^2 \]

where \( n \) is the number of firms in the industry, \( s_i \) represents the market share of the \( i \)th firm, and \( \bar{s} \) is the mean market share.

Viewed in this manner, the \( \frac{n}{\bar{s}^2} \) term forms the minimum value of the HHI and reflects the inverse of the number of firms in the industry. See supra notes 101-02. The second term is the formula for the statistical variance of firm market shares, describing the size inequality. Kwoka asserts that both these factors may aid in predicting performance but that the combination of them in the HHI is arbitrary and that better predictions of performance may result if they are related to performance separately. See Kwoka, Large Firm Dominance and Price-Cost Margins in Manufacturing Industries, 44 S. Econ. J. 183, 183-84 (1977).


155. See id.

156. See Encaoua & Jacquemin, Degree of Monopoly, Indexes of Concentration and Threat of Entry, 21 Int'l Econ. Rev. 87, 95, 99-103 (1980) (providing a theoretical justification for the \( k \)-firm concentration ratio—where \( k \) is some number of the largest firms in the industry—in a Cournot-Nash Equilibrium, a price leadership oligopoly, and a dynamic model where entry depends on the price and non-price policies of the dominant firms); Kwoka, supra note 152, at 188 (suggesting that industries dominated by a few large firms are more likely to be anticompetitive than highly concentrated ones with less firm size disparity).

157. See, e.g., Kwoka, Does the Choice of Concentration Measure Really Mat-
Hirschman Index, although an improvement over the four-firm concentration ratio, is not an unassailable choice as a concentration measure.

Another integral, yet theoretically and empirically unjustified, feature of the 1982 Guidelines is the HHI classification of markets into highly concentrated, moderately concentrated, and unconcentrated markets. No studies confirm, for example, that collusion is unlikely among 10 firms—the number of equal size firms corresponding to an HHI of 1000—but suddenly becomes a problem with six firms—the number most nearly corresponding to an HHI of 1,800. Moreover, the HHI increases permitted by the Guidelines within each level of concentration are equally unsubstantiated by any data. Instead, these classifications are based on the Department's belief that horizontal mergers can benefit the economy by increasing efficiency and thus the Justice Department should not unduly interfere with them. This view, however, is subject to considerable debate. Although some economists claim that concentration reflects the most efficient means of production, studies of specific mergers do not substantiate the claimed resource savings or efficiencies. Increases in the HHI may reflect an increase in the level of market power in that industry, yet the level of the HHI at which the amount of market power in that industry is intolerable cannot be known with exactitude. The liberaliza-

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158. According to the Justice Department, mergers "can penalize ineffective management and facilitate the efficient flow of investment capital and the redeployment of existing productive assets. While challenging competitively harmful mergers, the Department seeks to avoid unnecessary interference with that larger universe of mergers that are either competitively beneficial or neutral." Guidelines, supra note 1, ¶ 4502. See also J. Zukerman, supra note 90, at 3.

159. See, e.g., Brozen, supra note 72, at 362-66.

160. See Fisher & Lande, Efficiency Considerations in Merger Enforcement, to be published in 92 YALE L.J., at Section III (1982); Meehan, Rules vs. Discretion: A Reevaluation of the Merger Guidelines for Horizontal Mergers, 23 ANTITRUST BULL. 769, 790-92 (1978). See also Scherer, Structure-Performance Relationships and Antitrust Policy, 46 ANTITRUST L.J. 864, 871 (1977) ("The preponderance of the evidence supports a conclusion that mergers have neither improved nor reduced efficiency significantly relative to the merging firms' premerger performance or the accomplishments of non-merging enterprises in similar industries.").

161. See supra text accompanying notes 108 and 114.

162. The 1800 level of the HHI, for example, appears to be simply a compromise between 1600 and 2000, two levels previously mentioned by the Justice De-
tion of the market share criteria on the other hand, may reflect a recognition of the difficulties in predicting any efficiencies that may result from a merger. If the market share and concentration level factors of the new Guidelines stem from a departmental decision to allow more mergers in order to ensure the most efficiencies, the liberalized standards reflect a philosophical choice rather than one rooted in empirical evidence from past mergers.

A further problem with the Guidelines is that any error in defining the relevant market will blur any correlation between the HHI and actual market power. If the Guidelines' market definition expands the relevant market beyond its true size, department as the dividing line for highly concentrated industries. See Justice Department Unveils Long-Awaited Revisions to Merger Guidelines; FTC Issues Statement on Mergers, [Jan.-June] ANTITRUST & TRADE REG. REP. (BNA) No. 1069, at 1251, 1253 (June 17, 1982).

163. See Fisher & Lande, supra note 160, at Section III.

164. Alan Fisher, an FTC economist, and Robert Lande, an FTC attorney, suggest raising the market share guidelines in order to attain the greatest number of efficiencies from mergers. See Fisher & Lande, supra note 160, at Section V. See also FTC Statement on Horizontal Mergers, [Jan.-June] ANTITRUST & TRADE REG. REP. (BNA) No. 1069, at S-14 (June 17, 1982). The Guidelines reflect an attempt to allow all beneficial and neutral mergers, thus opposing only those the Department believes to be anticompetitive. See Guidelines, supra note 1, ¶ 4501; J. Zuckerman, supra note 90, at 3. The Justice Department, therefore, must value competitively neutral mergers, which by their classification cannot be justified on the ground of improved efficiency, for the purpose of penalizing ineffective management or facilitating the efficient flow of investment capital. See Guidelines, supra note 1, ¶ 4501.

165. Although this Note does not examine the product market definition of the 1982 Guidelines in any detail, it should be noted that the Guidelines' method of identifying the product market will result in larger markets than the product market definition given by the Supreme Court in Brown Shoe Co. v. United States, 370 U.S. 294, 325 (1962). Under the new Guidelines, the Department will first define a provisional market consisting of all goods which consumers perceive as good substitutes for the merging firms' goods at prevailing prices. The Department assumes that the price of all goods in this provisional market rises by 5% and then determines if consumers, as a result of this price hike, would shift their consumption to other goods. If such a shift would occur, the Department will include the products consumers bought instead of those in the provisional market as part of the product market. The Department will continue expanding the market until a 5% price hike would not result in a "significant percentage of the buyers of products already included" shifting and buying other products. See Guidelines, supra note 1, ¶ 4502.10.

This hypothetical price hike analysis merely defines the market as including all goods with a significant cross-elasticity of demand to the acquired firm's product. This approach, however, ignores the clear message of Brown Shoe, namely, that the cross-elasticity of demand between the product and its substitutes determines only the outer boundaries of the product market. The Court noted that "within this broad market, well-defined submarkets may exist which, in themselves, constitute product markets for antitrust purposes." 370 U.S. at 325. By eliminating the submarket approach, the Justice Department will identify only the larger "broad market," in which the merging firms will
the HHI will compound the error. For example, assume that the four largest firms in a correctly defined market each have a market share of 22 percent with a number of very small firms forming the remaining 12 percent. If the market estimated is larger than the true market, so that each of the four largest firms is calculated to hold only a 20 percent share of the market, the four-firm concentration ratio would be 80 percent, a deviation of only 10 percent from the true level of 88 percent. Using the HHI, the estimated market has a value of 1600, compared to the true value of 1936, a difference of 17 percent and a classification as moderately concentrated rather than highly concentrated. Consequently, alternative market definitions will have more dramatic effects on the HHI than on the four-firm concentration ratio, so that more cases are likely to turn on the market definition chosen. In the FTC challenge of the ConAgra merger, for example, four different market definitions are possible, yielding postmerger HHI values of 1845, 1794, 1140, or 828. Depending on the market definition chosen, the relevant market could be classified as highly concentrated, moderately concentrated, or unconcentrated.

2. Ease of Entry

If concentration and market share analysis does not indicate whether the Department will challenge a merger, businesses must consider the Guidelines' tiebreaking factors, the first of which is ease of entry. The Guidelines rely on a hypothetical price hike method to analyze ease of entry, but they control smaller market shares than they would of the submarket. Thus, the market definition chosen by the Department further liberalizes merger rules.

166. The assumption of very small firms allows one to ignore the effects of their market shares on the HHI. See supra note 98.

167. This assumes the small firms have no effect on the HHI. If the remaining firms each had 1% market shares, the HHI values would be 1620 and 1948 for the two market definitions.

168. FTC is Expected to Require ConAgra to Divest Flour Mills Acquired From Peavey, [July-Dec.] ANTITRUST & TRADE REG. REP. (BNA) No. 1074, at 229 (July 22, 1982).

169. Id. at 230.

170. See supra text accompanying note 83.

171. Some mergers will require only an analysis of the concentration and market share guidelines to determine the response of the Justice Department. See supra notes 84-89 and accompanying text.

172. See supra note 129 and accompanying text. The Department encountered some difficulty when it attempted to use a similar hypothetical price hike method as a means of identifying the relevant geographic market in a bank merger case. The court announced that it would be "utterly foolish to go off chasing rainbows" with the Department and their hypothetical price hikes when evidence is also offered "by the bankers in this case who are down at the
fail to indicate how the Department will determine the number of firms that will enter in response to the price hike. Furthermore, this hypothetical price hike method forces the analysis one step beyond the essence of the ease of entry issue. Current producers will expect a profitable exercise of market power only when they believe that structural barriers make the costs of entry prohibitive. Therefore, the Department need determine, not necessarily how many firms would enter, but whether any firm could enter in response to a price hike. This latter approach avoids the more complicated task of predicting the number of potential entrants at any price level and instead focuses the analysis on the simpler task of estimating the probable cost of entry.

The Guidelines' discussion of entry barriers also fails to mention whether advertising or product differentiation should be considered in ease of entry analysis. Firms enjoying a significant degree of brand loyalty developed through prolonged advertising can price persistently above their costs without attracting new entry because newcomers, to overcome their inferior image, must either price significantly below their more established rivals or engage in extensive advertising to promote their brand. In either case, the price or cost advantage enjoyed by the established firms will discourage entry. In addition, firms which are too small to advertise will have trouble getting their product off the ground and thus cannot afford to compete with larger firms. See, e.g., Marathon Oil Co. v. Mobil Corp., 669 F.2d 378, 381 (6th Cir. 1981), cert. denied, 455 U.S. 982 (1982) (estimating the cost of building a refinery at $1 billion and finding these costs constituted a "prohibitive" barrier to entry).

173. For determining the product market, where the Department uses a similar hypothetical price hike, the Department will use historical evidence when available or rely on questionnaire survey data in order to estimate the effects of a price hike. See Antitrust Division's Chief Economist Defends Value of New Merger Guidelines, [Jan.-June] ANTITRUST & TRADE REG. REP. (BNA) No. 1070, at 1303 (June 24, 1982). Presumably the Department would do the same for ease of entry.

174. Without barriers to entry, new firms would enter the industry whenever economic profits appeared, thus eliminating any long-run economic profits. See E. Mansfield, supra note 17, at 351-53.

175. See, e.g., Marathon Oil Co. v. Mobil Corp., 669 F.2d 378, 381 (6th Cir. 1981), cert. denied, 455 U.S. 982 (1982) (estimating the cost of building a refinery at $1 billion and finding these costs constituted a "prohibitive" barrier to entry).

176. Barriers to entry include the cost of minimum efficient plant size, the cost of heavy initial advertising to overcome the product differentiation current producers have built up, and the costs of obtaining natural resources, inputs or patent rights to the extent that these costs are higher than those incurred by current producers. E. Mansfield, supra note 17, at 352-53.

177. See F. Scherer, supra note 41, at 341.

178. The courts, as well as commentators, have recognized the important effect of advertising as a barrier to entry. See, e.g., Federal Trade Comm'n v. Proctor & Gamble Co., 386 U.S. 568, 579 (1967); United States v. Pabst Brewing...
tion, product differentiation, which is often the result of successful advertising, may itself form an important barrier to entry in markets for "experience goods," goods whose quality cannot be determined until after a consumer purchases and uses them. Since a consumer must invest the purchase price to determine the quality of the good, consumers will most likely continue to purchase the first brand that performs satisfactorily. New entrants to the market will find it difficult to persuade customers satisfied with a current brand to abandon it for the untried product of a newcomer.

Finally, the 1982 Guidelines, even though they include an ease of entry factor, undervalue the factor's importance to the profitable exercise of market power. Even firms in a highly concentrated market cannot maintain prices persistently above costs unless some barrier prevents new entry. Only when entry costs are prohibitively high will supracompetitive prices not induce new competitors to enter the industry and force prices down to competitive levels. If firms in the market perceive that new firms will enter in response to relatively low economic profits, a sufficient deterrent to the exercise of market power exists to justify tolerating higher levels of concentration. Therefore, a more appropriate merger analysis would consider barriers to entry—in terms of the absolute cost of an efficient scale plant, higher costs for resources and production methods, and advertising costs to overcome built-up product differentiation—to be as important as the concentration and market share criteria.

3. Other Factors

The remaining tiebreakers—such as the nature of the prod-
uct, the ease with which colluding firms can detect cheating, and past industry performance—come within the "Other Factors" category of the Guidelines. The Department, however, neglects to explain the relative weight it will give to each of these factors. Presumably, these factors will affect the likelihood of a challenge only if they suggest, on balance, either competitiveness or ease of collusion. By including these tiebreaking factors, the Department may have operated under the mistaken assumption that more variables yield better guidelines. More plausibly, the drafters included the tiebreakers, which reflect nearly every conceivable factor economists believe affect cartel behavior, because of their uncertainty about which oligopoly theory is correct. Instead of facilitating prediction about the probable performance effects of a merger or the likelihood of a Department challenge, the tiebreakers merely increase the amount of information and the number of calculations necessary to compare a given merger to the Department's standards. Guidelines fail to fulfill their purpose when they include any factor that increases the predictive power of the guidelines less than the additional costs of increased complexity.

Merger guidelines ideally should eliminate some of the ambiguity in Supreme Court horizontal merger decisions. Although the Department cannot tell businesses how the Supreme Court would rule on a proposed merger, it can give almost equally valuable information by indicating whether the Department is likely to challenge any given merger. Unfortunately, businesses will have to obtain a mass of confusing eco-

185. See supra text accompanying notes 138-49.
186. See supra notes 45-56 and accompanying text.
188. In economic terms, this directive can be restated as requiring information only if the marginal cost of obtaining it does not exceed its marginal benefit. See generally E. STOKEY & R. ZECKHAUSER, A PRIMER FOR POLICY ANALYSIS 134-58 (1978).
189. This ambiguity results primarily from the relatively small number of Supreme Court decisions on horizontal mergers in the past twenty years and the different treatment of concentration factors in the cases the Court did decide. See United States v. General Dynamics Corp., 415 U.S. at 510-11 (statistical market share evidence of past production did not reflect probable effects of merger's future effect on competition); United States v. Von's Grocery, 384 U.S. at 281 (merger forming a firm with 30% market share violates section 7 even though barriers to entry are low); United States v. Philadelphia National Bank, 374 U.S. at 364 (merger forming a firm with a 30% market share was presumptively illegal); Brown Shoe Co. v. United States, 370 U.S. at 322 (listing factors to be considered under the "functional view" of mergers).
nomic data to predict whether the Department will challenge a particular merger under the new Guidelines. This does not imply that the Guidelines themselves are confusing, but that the application of the Guidelines can be confusing, especially if the tiebreaking factors yield conflicting signals regarding the likely performance effect of a merger. Businesses considering mergers may understand the notion of market power and the theoretical reasons why the tiebreakers affect market power, yet still have no idea how a potential merger stacks up against these standards. The uncertainty will inevitably result in errors in both directions—some businesses will merge on the incorrect assumption that the Justice Department will not challenge the merger while others will forgo mergers when no challenge would have resulted.

IV. A PROPOSAL FOR MORE APPROPRIATE HORIZONTAL MERGER GUIDELINES

When the Justice Department replaced its 1968 Guidelines with a new merger policy in 1982, the message given to business was decidedly different from that of the previous decade. The Department's new laissez-faire attitude toward mergers stems from a belief that firms merge primarily as a means of increasing efficiency, representing a shift from the Department's strict antimerger attitude reflected in the 1968 Guidelines. As a policy choice, however, the wisdom of the current "efficiencies" emphasis is questionable; it is unsupported by empirical proof from actual mergers and may rely on inaccurate assumptions regarding management behavior.

A. APPLICATION OF THE X-INEFFICIENCY FACTOR TO MERGER ANALYSIS

Traditional merger analysis has been preoccupied with the market power aspect of increased concentration. The evil that conventional economic theory attributes to excessive market power is the welfare loss resulting from the misallocation of resources under the familiar monopoly model. But there is another kind of loss associated with undue concentration which also should be the concern of merger analysis. Economists call this other kind of loss X-inefficiency—the difference between the actual costs of production in an industry and the minimal


191. See supra note 38 and accompanying text.
costs that would exist if all firms in the industry were operating under the constraints of perfect competition.\footnote{192 See generally Leibenstein, Allocative Efficiency v. "X-Efficiency", 56 Am. Econ. Rev. 392 (1966) (focusing an "nonallocative efficiencies").}

The economic models used to predict industry performance assume that, regardless of the level of concentration, all firms will attempt to minimize their costs in order to maximize profits.\footnote{193 See E. MANSFIELD, supra note 17, at 141-44, 167.} This assumption seems appropriate when applied to a perfectly competitive market. In an industry with many small firms and little product differentiation, each firm will have little control over price. Because long-run equilibrium price will equal the lowest possible average total cost,\footnote{194 See id. at 257-58.} it follows that no firm can compete if its costs are above those of its competitors.\footnote{195 See id.} Each firm must hold its costs even with those of its rivals or face extinction. This forces firm management to obtain the maximum output from each employee and employ the most cost-effective means of production.

The assumption that firms will be cost minimizers, however, may not coincide with reality in more concentrated markets. In such markets, the economic models postulate that price will rise above competitive levels, thus yielding economic profits to the oligopolists.\footnote{196 See supra text accompanying notes 37 and 50-51.} If firms receive relatively high profits, intuition suggests that management will have less incentive to seek cost-improving methods and may permit some slack in operations.\footnote{197 See R. CYERT & J. MARCH, A BEHAVIORAL THEORY OF THE FIRM 36-38 (1963).} The difference between the costs of production under conditions conducive to slackness in management and those that would be incurred under conditions of perfect competition is the X-inefficiency.\footnote{198 See Leibenstein, supra note 192, at 406-07.} It can exist whenever management is able to accept less than the maximum output per worker or less than the most efficient means of production and still obtain satisfactory profits,\footnote{199 See Leibenstein, X-Inefficiency Xists—Reply to an Xorcist, 68 Am. Econ. Rev. 203, 205 (1978).} conditions which suggest that price is above the competitive level. Thus, in conditions approximating oligopoly, firms can enjoy modest economic profits despite some X-inefficiency. Rather than eliminate the X-inefficiency, management may prefer to incur...
costs that raise entry barriers to potential entrants.200

The presence of X-inefficiency indicates that the marginal cost and average cost curves currently facing the industry are higher than those that minimize costs.201 This implies that an industry with X-inefficiency could produce the same output from fewer inputs.202 To the extent that market structure differs from perfect competition, firms will have less incentive to minimize their inputs, which may result in poorer industry performance.203 Thus, the social loss due to excessive concentration is not only the allocative inefficiency postulated by the traditional economic models but also any X-inefficiency.204 If X-inefficiency already exists, a horizontal merger may aggravate the problem by enabling greater slack in operations or by decreasing the incentive to find more efficient methods of production. An increase in concentration in an industry with some entry barriers may cause only a slight increase in allocative

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200. Id.
201. See Leibenstein, supra note 192, at 412.
202. See Leibenstein, supra note 199, at 205.
203. Id. at 205-06.
204. Assume the noncompetitive industry illustrated in Figure 3 charges a price of P. If the average total cost curve is fairly flat and approximately equal to the marginal cost curve, triangle ABC represents the estimated amount of allocative inefficiency. See supra note 38. If more aggressive competition in the industry would force the firms to produce the same output at lower costs, the shaded area between the X-inefficient cost curve ATC and the X-efficient average total cost curve ATC1 represents the X-inefficiency. Moreover, allocative inefficiency is not the estimated triangle ABC but the larger triangle ADE. See W. Shepherd, The Treatment of Market Power: Antitrust, Regulation, and Public Enterprise, 58-59 (1975).

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![Figure 3](image-url)
Inefficiency but a much larger amount of X-inefficiency.205

Incorporating an X-inefficiency factor into merger analysis, however, would confront decisionmakers with the same problem of identification the Department undoubtedly encountered in attempting to devise guidelines that protect efficient mergers—no economic theory or study permits one to predict when a merger will result in either of these performance phenomena.206 This should not be important when the structural conditions of an industry clearly indicate the presence or absence of market power. Rather, it is in those markets in between the unconcentrated and highly concentrated ones, where there is less certainty about the likely performance effects of a merger, that efficiency and X-inefficiency will have their greatest impact on the choice of concentration and market share criteria.

The Department’s new Guidelines apparently assume that mergers in this middle group will either be neutral or create net efficiencies. In order to maximize the total number of efficient mergers, the Department ignores the possibility that some mergers in this middle group may be X-inefficient. It seems more likely that mergers falling within this middle group will consist of three types: efficient mergers, neutral mergers, and X-inefficient mergers. No one, including the Department’s lawyers, can know a priori under which of these categories a proposed merger will fall. By electing to permit most mergers in moderately concentrated markets, the Department obviously has made a philosophical choice to protect all possible efficiencies even at the expense of permitting some inefficiency.207

205. See Leibenstein, supra note 192, at 399. The X-inefficiency caused by a merger includes not only any resulting slack in operations but also the lower productivity in the future resulting from a decreased incentive to innovate. See Leibenstein, Organizational or Frictional Equilibria, X-Efficiency, and the Rate of Innovation, 63 Q.J. Econ. 600, 600-23 (1969).


207. The Guidelines indicate that the Justice Department wishes to challenge “competitively harmful” mergers while allowing beneficial or neutral ones. See Guidelines, supra note 1, ¶ 4501. The Department has indicated that mergers in industries with a postmerger HHI less than 1000 are within “safe harbors.” See Guidelines, supra note 1, ¶ 4503.101; Justice Department Unveils Long-Awaited Revisions to Merger Guidelines, supra note 162, at 1252. The Department is “unlikely” to challenge mergers in “moderately” concentrated industries, those with post-merger HHI values between 1000 and 1800, if the increase in the HHI is less than 100. The Department will challenge mergers increasing the HHI by more than 100 points only if the Guidelines’ other factors indicate that the merger will facilitate collusion. See supra notes 84-86 and accompanying text.
The actual frequency of efficient mergers is not known. But even if they are common, the Department's new merger policy fails to recognize that businesses can often attain the desired efficiencies through more salutary means. The primary efficiency associated with merger is economies of scale. Through merger, two small firms can combine their resources to obtain the cost advantages of larger sized firms. But merger is not the only means by which small firms can obtain the advantages attributable to size. In most cases, firms can duplicate the economies of scale sought through merger by internal expansion. Moreover, from an antitrust point of view, internal expansion is preferable to merger since internal expansion does not result in eliminating a competitor from the market.

The above analysis suggests that the concern of merger policy in moderately concentrated markets should be the reverse of that reflected in the Department's new Guidelines. Rather than attempting to protect efficient mergers, the drafters should have been concerned with preventing inefficient ones. By giving maximum weight to the efficiency factor and none to X-inefficiency, the 1982 Guidelines have departed from the strict antimerger philosophy that precipitated the enactment of the 1950 amendment to section 7 of the Clayton Act.

208. See supra note 160.
209. See D. Needham, supra note 15, at 263. Economies of scale occur when size permits the long-run average total cost curve to be at a minimum. Thus the firm produces its output at the lowest price per unit possible. See Note, Economies of Scale: Weighing Operating Efficiency When Enforcing Antitrust Law, 49 Fordham L. Rev. 771, 775 (1981).
210. See supra note 12.

The burden of proof is on those that argue that mergers improve allocative efficiency; so far reliable supporting evidence is lacking. In contrast it has not been shown clearly in these cases that the acquiring firm could not more slowly, but probably more certainly, achieve the economic efficiency results by internal expansion.

Heflebower, supra, at 121. See also 4 P. Areeda & D. Turner, supra note 4, ¶ 946c, at 164 (internal expansion is preferred when price is above the competitive level). But see Rethwisch, A Note on the Presumed Social Desirability of Internal Over External Growth, 14 ANTITRUST BULL. 855 (1969) (suggesting that conglomerate mergers may result in greater efficiency than direct entry).

212. Two commentators summarized the philosophy of the 1950 amendments as follows: "The legislative history suggests that otherwise doubtful or ambiguous situations were to be resolved in favor of a strict antimerger policy. Congress probably was willing to risk losing at least some efficiency to be very sure that it prevented the corporate acquisition of market power." Fisher & Lande, supra note 160, at Section II. See also United States v. Marine Bancor-
B. A PROPOSAL FOR MORE PREDICTABLE GUIDELINES THAT REFLECT X-INEFFICIENCY

This Note recommends the following as more appropriate guidelines for horizontal merger analysis in an agreed upon market:

The Justice Department will challenge a merger if:

a) the merger increases the Herfindahl-Hirschman Index by more than 50 points in an industry with a postmerger index of at least 1250, or the merger increases the Herfindahl-Hirschman Index by more than 100 points in an industry with a postmerger index below 1250; and

b) the industry has moderate to substantial barriers to entry; and

c) total costs of firms in the market exceed $200 million.

In addition to these guidelines, the Justice Department will challenge any merger increasing the Herfindahl-Hirschman Index by 200 points or more if some barriers to entry exist.

These guidelines are simple and, for any defined market, easily calculated. Moreover, they eliminate the complex and unnecessary “tiebreakers” analysis of the 1982 Justice Department Guidelines. Although the Department’s “other factors” might provide a clue to the level of competition in a particular industry, they should not influence the initial determination of whether to challenge a merger. Under this proposal, business firms would not need to assess these factors in order to predict the Justice Department's likely response to a merger.

The proposed guidelines rest on two basic premises. First, the proposal recognizes that some causal relationship exists between structure, conduct, and performance in all market structures. As market structure becomes more concentrated, performance suffers as a result of increased market power and decreased desire to eliminate X-inefficiency. Second, the proposal adopts the philosophy that it is better to forgo some beneficial mergers in order to prevent as many inefficient ones as possible. If this policy errs in predicting the effects of a merger,

213. These proposed guidelines indicate only whether the Justice Department will challenge a merger. They still allow firms to show, during pre-trial or trial, that other aspects of the market tend to make this three-pronged test an unreliable indicator of performance in that particular industry. In this respect, the proposed guidelines follow the prima facie case approach suggested in United States v. General Dynamics Corp., 415 U.S. 486, 498 (1974) and United States v. Marine Bancorporation, 418 U.S. 602, 631 (1974).
it will err as a restrictive policy that prevents some efficient mergers, as opposed to the more liberal 1982 Guidelines which err on the side of allowing some mergers that may increase X-inefficiency or lead to the exercise of market power.

The proposed guidelines use the Herfindahl-Hirschman Index despite its weaknesses\(^\text{214}\) because of its advantages as a summary and relative index.\(^\text{215}\) Since moderately concentrated industries probably have some degree of X-inefficiency,\(^\text{216}\) the proposal classifies industries in relation to an HHI of 1250—the value associated with an industry of eight equal-size firms.\(^\text{217}\) An industry with eight equal-size firms should limit the market power of each firm and provide enough aggressive competition to keep X-inefficiency to a relatively low level.\(^\text{218}\)

The 100 and 50 point thresholds reflect the avowed purpose of the proposed guidelines—to disallow some efficient mergers in order to prevent almost all inefficient ones.\(^\text{219}\) The lower

\(^{214}\) *See supra* notes 150-57 and accompanying text.

\(^{215}\) *See supra* notes 96-102 and accompanying text.

\(^{216}\) *See supra* text accompanying notes 196-99.

\(^{217}\) Since \(\frac{1}{\text{HHI}} = N\), where \(N\) represents the number of equivalent size firms, an HHI of 1250 corresponds to an industry with eight equal-size firms. *See supra* note 99.

\(^{218}\) The postmerger HHI level and the permissible increases in the index admittedly reflect somewhat arbitrary choices, but differences over the numbers in this proposal should not detract from the suggested approach. The proposal depends not on having the 1250 HHI definition of a more concentrated market, but on defining some threshold where firms will have little market power and an incentive to minimize X-inefficiency. The 1250 HHI value represents a conservative threshold; Areeda and Turner suggest that interdependent pricing may occur whenever the number of firms falls below 10 to 12. *See 4 P. Areeda & D. Turner, supra note 4, ¶ 910c, at 57-58.

\(^{219}\) Even with the lower permissible increases in the HHI, the proposed guidelines still allow mergers which would not increase concentration dramatically. In an industry with a post-merger HHI below 1250, the proposed guidelines would allow mergers between firms with market shares of

<table>
<thead>
<tr>
<th>Acquiring</th>
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<tr>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>10%</td>
<td>5%</td>
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<tr>
<td>15%</td>
<td>3½%</td>
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<td>20%</td>
<td>2½%</td>
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<tr>
<td>25%</td>
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In more concentrated industries, where the post-merger HHI is 1250 or above, the 50 point limit would allow mergers between firms with market shares of

<table>
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<tr>
<td>4%</td>
<td>6%</td>
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<td>10%</td>
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<td>25%</td>
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threshold in markets having an HHI in excess of 1250 reflects the greater risk in more concentrated markets that a merger will cause an increase in market power or X-inefficiency. Because greater concentration may permit more X-inefficiency, the level of market power suggested by industry HHI alone may understate the actual inefficiency in the industry.\textsuperscript{220} The market share suggestions thus allow firms to merge under conditions more restrictive than those of the 1982 Guidelines, conditions which presumably would not affect the relative desire of firms to produce the most output from given inputs.

Even if a merger is suspect under the proposed concentration and market share criteria, the Justice Department would not challenge a merger unless entry is relatively difficult. In considering ease of entry, the Department should evaluate the extent to which entry requires large initial investments,\textsuperscript{221} acquisition of controlled inputs or patented production methods, or significant product differentiation.\textsuperscript{222} The current Guidelines' emphasis on how many firms will enter in response to a given price hike has less significance than the likelihood that some firms will or will not enter.\textsuperscript{223} If current producers perceive that new firms are entering the industry or will enter in response to an increase in price or profits, the firms will have less incentive to exercise market power and more incentive to eliminate X-inefficiency.\textsuperscript{224} Conversely, firms will be more likely to exercise market power and allow more slack in operations as entry becomes more difficult.

The third prong of these guidelines measures annual total costs in the industry in recognition of the importance of proper allocation of enforcement resources.\textsuperscript{225} For a given level of wel-

\textsuperscript{220} See supra text accompanying note 205.
\textsuperscript{221} Courts have measured barriers to entry in terms of the cost of a minimum efficient scale plant. See United States v. Container Corp. of America, 393 U.S. 333, 336 (1969); Marathon Oil Co. v. Mobil Corp., 669 F.2d 378, 381 (6th Cir. 1981), cert. denied, 455 U.S. 982 (1982).
\textsuperscript{222} Although the cost of constructing an efficient plant may give a preliminary indication of the difficulty of entry, a more accurate measure would also include the additional costs of a new entrant to offset product differentiation and control of inputs or production methods by other firms. See supra notes 172-81 and accompanying text.
\textsuperscript{223} See supra text accompanying notes 173-75.
\textsuperscript{224} See supra text accompanying notes 182-83 and 193-95.
\textsuperscript{225} Landes and Posner also suggest a consideration of the social cost of an
fare loss or X-inefficiency, larger markets have considerably greater social costs. Using X-inefficiency as an example, if the average total cost in a perfectly competitive industry would be only 90% of actual industry costs, an industry with total costs of $100 million has X-inefficiency of $10 million, while an industry with total costs of $1 billion has X-inefficiency of $100 million. The two industries have the same level of inefficiency, but the larger one causes a greater misuse of resources.

The Justice Department should not challenge every merger satisfying the first two prongs of the proposed guidelines, because the cost of challenging a merger in a very small market may exceed its social cost in terms of increased inefficiency.\textsuperscript{226} Assuming that a merger exceeding the proposed guidelines increases allocative inefficiency and X-inefficiency by 5% of total costs, the net social cost of the merger in an industry with $200 million in total costs amounts to $10 million.\textsuperscript{227} Thus, the third factor in the proposed merger analysis suggests that the Justice Department challenge only those mergers with social costs, including X-inefficiency, of at least $10 million.

The third prong of the proposed guidelines does not imply that firms in very small markets may merge freely. The 200 point limit in the final section of the guidelines warns firms that antitrust violation, but they limit their analysis to deadweight loss without considering the additional social cost of X-inefficiency. See Landes & Posner, \textit{supra} note 4, at 953-56.

\textsuperscript{226} This aspect of the proposal responds to Justice Harlan's concern that the Justice Department not waste scarce resources challenging every merger despite its effect on the economy. See United States v. Phillipsburg Nat'l Bank \& Trust, 399 U.S. 350, 373 (1970) (Harlan, J., dissenting).

\textsuperscript{227} The $10 million in social costs need not reflect an increase in allocative inefficiency and X-inefficiency of 5% in one year. Rather it indicates that the total future allocative and X-inefficiency caused by a merger will equal 5% of costs in a single year.

This assumption that mergers increasing the HHI by more than the proposed limits will cause allocative and X-inefficiency of 5% represents, of course, a best guess. Although decreases in competitive pressure allow greater X-inefficiency (see Leibenstein, \textit{supra} note 192, at 398; Leibenstein, \textit{supra} note 199, at 205-06), no empirical study indicates the effect of a merger on the level of X-inefficiency. Studies have shown that X-inefficiency may constitute up to 25% of total costs in some industries. See Leibenstein, \textit{supra} note 192, at 399. See also Primeaux, \textit{supra} note 206, at 107 (estimating that natural monopolies may have X-inefficiency of 11%). If, contrary to the "guessimate" made here, mergers violating the proposed guidelines will increase allocative inefficiency and X-inefficiency by only 3% of total costs, the social costs in an industry with $200 million in total costs would be $6 million. In such a case, the issue would be whether $6 million in social costs justifies a challenge or whether the $200 million minimum total costs requirement should be raised. In order to err on the side of preventing greater allocative and X-inefficiency, these guidelines presume the higher inefficiency level of 5%.
the Department will not ignore mergers creating market power or X-inefficiency simply because they occur in small markets. At the same time, the higher threshold for smaller markets recognizes that such industries frequently have lower entry barriers, especially with respect to the absolute costs of entry.

V. CONCLUSION

The Department’s adoption of the Herfindahl-Hirschman Index represents a major improvement over the four-firm concentration ratio of the former Guidelines. Although the relationship between structure, conduct, and performance is not as clear under oligopoly conditions, economists have demonstrated, under some oligopoly theories, a relationship between the HHI of an industry and the degree of market power in the industry as measured by the Lerner index. Thus, the HHI value of an industry following a merger will yield an accurate picture of the likely performance of that industry if the conduct assumptions of the oligopoly theories are met.

While one may applaud the Department’s selection of concentration measure, one may wonder, on the other hand, why the Department did not recognize in its new Guidelines that barriers to entry constitute an equally important element to the successful exercise of market power even in highly concentrated markets. The new Guidelines consider entry barriers only in moderately concentrated markets or in more highly concentrated markets if the market shares aggregated by a merger are relatively small. Unfortunately, when considering them, the Department must use an unnecessarily complicated method of calculating their extent.

The relationship between the Guidelines’ “other factors” and industry performance is more tenuous. Their addition serves mainly to complicate the process of predicting whether the Department is likely to challenge a merger and adds little to the Guidelines’ predictive value.

More importantly, however, the Guidelines reflect a deliberate choice to permit most mergers in other than highly concentrated markets on the assumption that mergers in these markets will have no detrimental performance effects and may achieve socially desirable efficiencies. In addition to the lack of empirical data to support the efficiencies assumption, this approach also ignores the possibility that mergers in noncompetitive markets are as, if not more, likely to increase inefficiency by encouraging slack management and reducing incentive to
innovate. The results are guidelines that are more lenient with respect to most mergers than economic theory or the background to section 7 would justify.

This Note has suggested alternative horizontal merger guidelines that, in contrast to the Department's new Guidelines, are simple, understandable, and easily calculated. The proposed guidelines rest on the recognition that because economic theory cannot adequately explain the causal relationship between structure, conduct, and performance in oligopoly, a good merger policy should err on the side of preventing some beneficial mergers rather than allowing too many inefficient ones. The proposal also recognizes the importance of allocating the scarce resources of the Justice Department, so that enforcement focuses only on those mergers causing the greatest social loss.