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Merger Policy and the 2010 Merger Guidelines

Herbert Hovenkamp*

I. Introduction

A merger occurs when two firms that had been separate come under common ownership or control.¹ The word "merger" has a broader meaning in federal antitrust law than in state corporation law.² In many cases a "merger" for antitrust purposes is merely the purchase by one firm of some or all of the assets of another firm. A merger of corporations also occurs when one corporation buys some or all of another corporation's shares. The antitrust laws also use the word "merger" to describe a consolidation: two original corporations cease to exist and a new corporation is formed that owns the assets of the two former corporations.³

Today the means by which a merger occurs is largely irrelevant to its legality under the antitrust laws. This was not always so. Before § 7 of the Clayton Act was amended in 1950 the statute applied to stock acquisitions but not asset acquisitions.⁴ The result was that stock acquisitions came under the relatively strict test imposed by § 7, which condemns mergers that "may * * * substantially * * * lessen competition, or * * * tend to create a monopoly." Asset acquisitions came under the less restrictive test of § 1 of the Sherman Act, or, if the acquisition produced a monopoly, § 2 of the Sherman Act.⁵ Today, § 7 reaches both stock and asset

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¹ "Control" is relevant because leases or contractual arrangements amounting to less than fee simple ownership can be challenged as mergers. See 5 Antitrust Law ¶ 1202 (3d ed. 2009). See also *McTamney v. Stolt Tankers & Terminals*, 678 F.Supp. 118 (E.D.Pa. 1987) (contract to purchase productive assets plus effective control was an "acquisition" for Clayton § 7 purposes). Cf. *Lucas Automotive Engineering v. Bridgestone/Firestone*, 140 F.3d 1228 (9th Cir. 1998) (assuming that long-term exclusive license to manufacture tires under the licensor's name is a merger); *Eastman Kodak Co. v. Goodyear Tire & Rubber Co.*, 114 F.3d 1547, 1997-1 Trade Cas. ¶ 71824 (Fed.Cir. 1997) (dicta: firm's acquisition of exclusive right to enforce a patent can be § 7 violation).

² See J.D. Cox & T.L. Hazen, *Corporations*, ch. 22 (2d ed. 2003); R. C. Clark, *Corporate Law* 401-498 (1986). However, see *California v. American Stores Co.*, 872 F.2d 837, 845 (9th Cir.), affirmed on other grounds, 495 U.S. 271, 110 S. Ct. 1853 (1990), holding that state corporate law should be used to determine when an acquisition had occurred.

³ For example, *United States v. Rockford Memorial Corp.*, 717 F.Supp. 1251 (N.D.Ill. 1989), affirmed, 898 F.2d 1278 (7th Cir.), cert. denied, 498 U.S. 920, 111 S. Ct. 295 (1990).

⁴ See *Arrow-Hart & Hegeman Electric Co. v. FTC*, 291 U.S. 587, 54 S. Ct. 532 (1934). Earlier interpretations, which permitted the FTC to challenge asset acquisitions occurring after its complaint had been filed, are recounted in *FTC v. Western Meat Co.*, 272 U.S. 554, 47 S. Ct. 175 (1926). See especially Justice Brandeis' dissent, *id.* at 563-564, 47 S. Ct. at 179; and see Herbert Hovenkamp, *Enterprise and American Law: 1836-1937* at ch. 20 (1991) on the legal forms of early mergers; and 4 Antitrust Law ¶ 902-903 (3d ed. 2009).

⁵ See *United States v. Columbia Steel Co.*, 334 U.S. 495, 68 S. Ct. 1107 (1948), which applied the Sherman Act to an asset acquisition. The court noted that the "public policy announced by § 7 of the Clayton Act" should be applied to an asset acquisition that achieved the "same economic results" as a

acquisitions. Further, the Sherman and Clayton Act standards are probably the same.⁶ Before 1980, § 7 of the Clayton Act applied only to corporations. It has now been amended to refer to all "persons," whether incorporated or not.

A "horizontal" merger occurs when one firm acquires another firm that manufactures the same product or a close substitute, *and* both firms operate in the same geographic market. In short, the firms were actual competitors before the merger occurred. If the two firms were not actual competitors before the merger, then the merger will be treated either as "vertical" or "conglomerate" depending on the relationship between the firms.

Americans became preoccupied with mergers during a great wave of them between 1895 and 1904, when perhaps as many as fifteen percent of American firms were involved in at least one merger.⁷ This great merger movement was traditionally viewed as anticompetitive. In the 1970's and 1980's, however, economic historians began to argue that the mergers were the product of new technology that required greatly increased output, but that consolidation was then necessary because markets could accommodate fewer firms.⁸ Subsequent historians then found evidence that, although much of the consolidation was necessary, many mergers were accompanied by practices that seemed inconsistent with purely competitive explanations.⁹ Both the motives and outcomes of the great merger movement must be regarded as mixed. The movement produced many failures, but it also gave the United States some of its largest business firms. Finally, it laid the foundations for the oligopolistic structure that some American markets have today.

There is also good evidence that enforcement of the Sherman Act actually *caused*, or at least contributed, to the velocity of, the great merger movement. High fixed costs and high output forced firms to integrate their output, but strict enforcement of Sherman Act § 1 made most

stock acquisition. 334 U.S. at 507 n.7, 68 S. Ct. at 1114. However, it went on to uphold the merger under Sherman Act standards.

⁶ See *Rockford Memorial*, note 3 at 1258. Historically, the confluence of Sherman Act and Clayton Act standards was also not the case. The Sherman Act was used to condemn a merger already in *Northern Securities Co. v. United States*, 193 U.S. 197, 24 S. Ct. 436 (1904) (condemning a railroad merger effected by a holding company). However, in *Columbia Steel*, note 5, the Court appeared to require that the merging firms have an intent to monopolize the post-merger market. *Columbia Steel* was one of the causes of Congressional expansion of § 7 in the 1950 Celler-Kefauver Amendments. See S. Rep. No. 1775, 81st Cong., 2d Sess. 4–5 (1949); H.R. Rep. No. 1191, 81st Cong., 1st Sess. 11–12 (1949).

⁷ See H. Hovenkamp, *Enterprise*, note 4, at chs. 20–25; Ralph L. Nelson, *Merger Movements in American Industry, 1895–1956* (1959); Naomi Lamoreaux, *The Great Merger Movement in American Business, 1895–1904* (1985); Stuart W. Bruchey, *Enterprise: the Dynamic Economy of a Free People*, ch. 11 (1990).

⁸ Alfred D. Chandler, *The Visible Hand: the managerial Revolution in American Business* (1977); Chandler, *Scale and Scope: Dynamics of Industrial Capitalism* (1990); Thomas K. McCraw, *Rethinking the Trust Question 1*, in *Regulation in Perspective: Historical Essays* (Thomas K. McCraw ed. 1981).

⁹ The practices included nationwide noncompetition covenants and a great deal of preemptive contracting, whose principal purpose was to deny competitors access to a needed input. See Hovenkamp, note 4, chs. 20–21; Lamoreaux, note 7.

collusion illegal. So many firms took the alternative route of merger, since merger enforcement was generally much weaker.¹⁰ Because they took this route, American firms probably developed more efficiently and became much larger. For example, England was much more tolerant of cartels, and thus small firms could collude as an alternative to merger or internal growth. As a result, by the mid-twentieth century many British industries were dominated by inefficiently small, family owned firms.¹¹ So aggressive American antitrust policy may have had an efficient consequence, although it was not the consequence that its planners had in mind.

Today the great majority of merger cases are brought by the Antitrust Division of the Department of Justice (Division) and the Federal Trade Commission (FTC).¹² A few are brought by private plaintiffs, but their success rate has not been high.¹³ In 2010 the Division and the FTC jointly issued a set of Guidelines outlining their enforcement policies respecting horizontal mergers. These Guidelines, which replaced previous Guidelines issued in 1968, 1982, 1984, and 1992, serve as a useful starting point for assessing the competitive effects of mergers.¹⁴ This essay integrates the discussion of case law, Guidelines and fundamental economic theory in a way that indicates the importance and appropriate domain of each.¹⁵ Importantly, federal merger policy is still governed by the statute and judicial law interpreting it. The Merger Guidelines are only Guidelines and they are not binding on courts. Nonetheless, over the years the courts have paid close attention to previous versions of the Guidelines and are likely to do so with the 2010 Guidelines as well.

The unifying theme of the Horizontal Merger Guidelines is to prevent the enhancement of market power that might result from mergers. The 2010 Guidelines state that “[a] merger enhances market power if it is likely to encourage one or more firms to raise price, reduce output, diminish innovation, or otherwise harm customers as a result of diminished competitive constraints or incentives.”¹⁶ Clearly the focus on enhancement of market power is not limited to price. Both the 1992 and 2010 Guidelines expressed a concern about mergers that might restrain innovation, but the emphasis in the 2010 Guidelines is greatly expanded. While the 1992 Guidelines stated in a footnote that sellers with market power may also lessen competition in other areas (such as innovation), the 2010 Guidelines contain an entire section on innovation and

¹⁰ See George Bittlingmayer, *Did Antitrust Policy Cause the Great Merger Wave?*, 28 *J.L. & Econ.* 77 (1985).

¹¹ See Tony Freyer, *Regulating Big Business: Antitrust in Great Britain and America, 1880–1990* (1992).

¹² Collectively, the Division and the FTC are frequently referred to below as the “Agencies.”

¹³ See Herbert Hovenkamp, *Federal Antitrust Policy: the Law of Competition and its Practices* § 16.3a (4th ed. 2011) (in press).

¹⁴ U.S. Dept. of Justice and Federal Trade Commission, *Horizontal Merger Guidelines* (Aug. 2010), available at <http://www.justice.gov/atr/public/guidelines/hmg-2010.html>. The 1992 Horizontal Merger Guidelines were actually the first to be issued jointly by the Department of Justice Antitrust Division and the FTC. Earlier Guidelines were issued by the Department of Justice alone. See generally Charles A. James, *Overview of the 1992 Horizontal Merger Guidelines*, 61 *Antitrust L.J.* 447 (1993).

¹⁵ Vertical and potential competition mergers continue to be analyzed under standards promulgated in the 1984 Justice Department Guidelines.

¹⁶ 2010 Horizontal Merger Guidelines, §1.

product variety. The Guidelines worry that a merger might curtail innovation, such as in cases where the acquired firm is engaged in innovation activities that are likely to capture revenues from the acquiring firm and a merger might serve to diminish those efforts.¹⁷ For the most part these are “long run” effects, perhaps not showing up until years after a merger occurred (or was prevented from occurring).

The Continuing Importance of Market Structure to Merger Analysis

In the 1960's and earlier, industrial organization theory was governed by the "Structure–Conduct–Performance" (S–C–P) paradigm, which suggested that as industries became more concentrated the firms within them would naturally find collusive or oligopolistic conduct more profitable. The result would be poor industry performance.¹⁸ The importance of the S–C–P paradigm was that market structure *entailed* poor performance, because the structure itself made oligopoly conduct inevitable; that is, given a highly concentrated structure, the profit-maximizing strategy for a firm was to behave oligopolistically.

In the 1970's the S–C–P paradigm came under increasing attack from those who argued that (1) high concentration was necessary for firms in many markets to attain available economies of scale and scope; and (2) markets could continue to perform competitively even at high concentration levels.¹⁹ Today, thanks in part to the growing importance of strategic considerations in industrial organization, there is a new appreciation for the importance of concentration.²⁰ Most strategies for earning monopoly profits require either a dominant firm or relatively high concentration as a prerequisite. Many of the strategies work much better as concentration levels go up.²¹

Today antitrust enforcers and courts continue to rely on structural evidence as a guide in determining the likely competitive consequences of mergers.²² However, structural analysis is

¹⁷ *Id.*, §6.4.

¹⁸ Important works include Edward S. Mason, Price and Production Policies of Large–Scale Enterprise, 29 *Am. Econ. Rev.* 61 (1939); H. Michael Mann, Seller Concentration, Barriers to Entry, and Rates of Return in Thirty Industries, 1950–1960, 48 *Rev. Econ. & Stat.* 296 (Aug. 1966); and the first edition of Frederic M. Scherer, *Industrial Market Structure and Economic Performance*, ch. 1 (1970). The S–C–P paradigm is discussed more fully in Hovenkamp, *Federal Antitrust Policy*, § 1.7. On the history and theory, see Herbert Hovenkamp, *United States Competition Policy in Crisis, 1890-1955*, 94 *Minn.L.Rev.* 311 (2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1156927.

¹⁹ For example, Harold Demsetz, *Industry Structure, Market Rivalry, and Public Policy*, 16 *J. L. & Econ.* 1 (1973); Yale Brozen, *Concentration, Mergers, and Public Policy* (1983). Other literature is summarized in Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 *Univ. Pa. L. Rev.* 925 (1979).

²⁰ See Jonathan B. Baker, *Market Concentration in the Antitrust Analysis of Horizontal Mergers*, in *Antitrust Law & Economics* (Keith Hylton, ed., 2009).

²¹ See generally, Timothy Bresnahan & Richard Schmalensee, eds., *The Empirical Renaissance in Industrial Economics*, 35 *J. Indus. Econ.* 4 (1987).

²² See Hovenkamp, *Federal Antitrust Policy*, § 12.3.

not used in the same way today as it was in the 1960s. *First*, mergers in the 1960's were condemned on much smaller market shares and in much less concentrated markets than would be required today. *Second*, while the old S–C–P paradigm assumed that high concentration *entailed* poor performance, the new approach tends to view high concentration as merely a *prerequisite* for poor performance. This in itself is a major qualification—in fact a rejection—of the S–C–P paradigm, for it means that evaluation of non-structural evidence is essential to predicting the behavior of the post-merger market. The 2010 Horizontal Merger Guidelines demonstrate this influence by the way in which they take various factors other than market share into account in predicting the consequences of a merger.²³ *Third*, we have become much more sensitive to the impact of economies of scale and scope in production and distribution. That is, the industrial economist of the 1990s is much less likely than the 1960's economist was to assume that breaking up big firms in an industry will make consumers better off. Gains in competitiveness may be more than offset by losses in productive efficiency.²⁴

***The Basic Concerns of Merger Policy: Reduced Market Output,
Higher Prices, and Offsetting Efficiencies***

Because the horizontal merger involves two firms in the same market, it produces two consequences that do not flow from vertical or conglomerate mergers: 1) after the merger the market contains one firm less than before; 2) the post-merger firm ordinarily has a larger market share than either of the partners had before the merger.²⁵ Today one principal concern of merger policy is that horizontal mergers may facilitate market wide express or tacit collusion or oligopoly behavior.²⁶ The 2010 Guidelines use the term "coordinated interaction" to refer to these things.²⁷ A second concern is that a merger may facilitate a "unilateral" price increase by the post-merger firm, while other firms in the market may increase their price slightly or not at all.²⁸ Mergers may additionally create opportunities for price leadership or in some cases eliminate aggressive firms or firms that refuse to cooperate in a cartel.

²³ See *id.*, §§ 12.4c, 12.7. However, see *United States v. Oracle Corp.*, 331 F.Supp.2d 1098, 1122–1123 (N.D.Cal. 2004), which criticized the 1992 Horizontal Merger Guidelines in force at that time for being excessively structural.

²⁴ For a survey of the S–C–P literature from relatively sympathetic writers, see James W. Meehan & Richard J. Lerner, *The Structural School, its Critics, and its Progeny: an Assessment* 179, in *Economics and Antitrust Policy* (Richard J. Lerner & James W. Meehan eds. 1989).

²⁵ In fact, the post-merger firm's share could be either larger or smaller than the pre-merger shares of the merging firms. If the merger makes the firm more efficient it would increase its output, giving it a larger share. If the merger facilitates the exercise of market power the firm would reduce output and to an extent rivals would pick up the slack, giving the post-merger firm a smaller share. See 4 *Antitrust Law* ¶ 932a (3d ed. 2009).

²⁶ On collusion and Cournot oligopoly, see Hovenkamp, *Federal Antitrust Policy*, § 4.2.

²⁷ 2010 Horizontal Merger Guidelines, §7.1, available at <http://www.justice.gov/atr/public/guidelines/hmg-2010.html>.

²⁸ 2010 Guidelines, §6.

If mergers produced no beneficial consequences, but only anticompetitive ones, we could justifiably condemn all of them under a *per se* rule. Most mergers are legal, however because they can increase the efficiency of firms by enabling them to attain efficient levels of manufacturing, research & development, or distribution more rapidly than the firms could accomplish by internal growth. Mergers of nondominant firms may make markets more competitive by creating more substantial rivals for the dominant firm. Further, mergers may permit firms to acquire productive assets without the social cost that internal growth plus the bankruptcy of some firms might entail. Finally, mergers tend to assign productive assets away from less efficient managers and toward more efficient ones, where the assets will be more valuable.²⁹ Alternatively, they may permit the firm to achieve economies in management by eliminating duplication. At least some of these efficiencies are ordinarily passed on to consumers.

Economies of scale can be broadly grouped into two kinds: economies of plant size, and various multi-plant economies. Generally a horizontal merger does not increase plant size,³⁰ but rather increases the number of plants that are controlled by a single management. This suggests that a merger will not often decrease the costs of operating a single plant,³¹ but it may yield substantial multi-plant economies. For example, it may be cheaper per unit to purchase 1,000,000 units of some raw material at a time rather than 200,000. Further, the costs per unit of research and development decrease as the number of units a firm produces increase. Likewise, a 30-second television commercial costs as much for a small firm as for a large one, and a one-page grocery store advertisement in a newspaper costs the same, whether it represents the offerings of a single store or of a 100 store chain.

Large horizontal size may also make various forms of vertical integration possible. For example, a large grocery chain with hundreds of retail stores may be able to own its own farms and dairies and operate its own warehouses. This would not be feasible for a single-store firm, which would have to rely on the market.³²

²⁹ Although there is some empirical evidence suggesting that takeover targets are underpriced because they are in poorly performing industries, not because the individual firms are badly managed. This suggests in turn that poor performance of the target may explain vertical or conglomerate mergers more frequently than it does horizontal mergers. See Randall Morck, Andrei Shleifer & Robert W. Vishny, "Characteristics of Targets of Hostile and Friendly Takeovers," 114 in *Corporate Takeovers: Causes and Consequences* (A. Auerbach, ed. 1988).

³⁰ Although there are exceptions. If one farmer purchases an adjacent farm, she may combine and operate them as a single plant. Likewise, if one airline purchases another, the fleets of planes will very likely be operated together as one.

³¹ However, mergers can create single plant economies by permitting longer production runs and increased specialization within each plant. For example, if two ball bearing manufacturers merge, the post-merger firm will be able to make all bearings of one type in one plant, those of a second type in a second plant, etc. See Federic M. Scherer and David Ross, *Industrial Market Structure and Economic Performance* 164 (3d ed. 1990).

³² See generally 4 Antitrust Law ¶¶ 970, 973 (3d ed. 2009).

The kinds of efficiencies that can be achieved by horizontal merger vary immensely from one industry to another. They are largely a function of highly individualized technology and distribution systems. Some industries, such as retail grocers, banks, and trucking companies, may be able to reduce costs significantly and improve consumer welfare by horizontal mergers. Others, such as delicatessens and small French restaurants, may work more efficiently as single-store operations.³³

Horizontal mergers can create other efficiencies than decreased costs of production or distribution. For example, if horizontal mergers are legal, independent business persons have a "parachute" that they can use if their business does poorly or if they want to retire. Too strong a rule against horizontal mergers may make a small business difficult to sell, particularly if a larger business can be run more efficiently and the small business is languishing as a result. The knowledge that someone can sell out to a larger firm may even encourage entry into a particular market.

The most difficult problem in determining an appropriate merger policy is that the field of mergers cannot be divided into mergers that encourage collusion or increase market power on the one hand, and mergers that create efficiency on the other. Many mergers do both at once. To be sure, there are cases at the extremes where we can confidently predict that the efficiency produced by a particular merger far outweighs the predictable danger of noncompetitive behavior, or vice-versa. But many legally questionable mergers produce ambiguous results.

Further, any theorizing about the efficiency consequences of mergers must be considered in the light of some fairly sobering empirical evidence: by and large, firms that undergo mergers do not improve their market performance. Many experience a decline in profitability.³⁴ Of course, this fact can be seen as quite irrelevant to merger policy. Such mergers may be bad for consumers, but they are bad for the participating firms as well. To the extent that mergers make the post-merger firms less profitable, they are self-detering. Antitrust's purpose is not to save firms from their own bad judgment.

Given that collusion is illegal under the Sherman Act anyway, why do we bother committing resources to evaluating mergers as transactions that *might* result in higher prices? Why not simply wait until prices actually rise? The most important answer is that the Sherman Act has turned out to be a woefully inadequate instrument for going after oligopoly or other collusion-like behavior.³⁵ Further, of the collusion reachable under § 1, only a small percentage is detected. Even worse, if the feared consequence of a merger is a unilateral price increase there is not much antitrust can do. Under United States antitrust law a firm acting unilaterally may set

³³ For a good discussion of the different scale economies available in various industries, see Scherer & Ross, note 31 at 97–151; see also Brozen, note 19.

³⁴ See David J. Ravenscraft & F.M. Scherer, *Mergers, Sell-Offs, and Economic Efficiency* (1987); the findings of this book are summarized briefly in Scherer & Ross, note 31 at 163–174. See also Geoffrey Meeks, *Disappointing Marriage: A Study of the Gains from Merger* (1977), which reaches similar conclusions using mainly British data.

³⁵ See Hovenkamp, *Federal Antitrust Policy*, §§ 4.4–4.5.

any price it wishes.

Merger policy is the most powerful weapon available in the American antitrust arsenal for combatting tacit collusion or Cournot style oligopoly. Since we cannot go after oligopoly directly under § 1, we do the next best thing. We try to prevent (taking efficiencies and other factors into account) the creation of market structures that tend to facilitate Cournot or collusion-like outcomes.³⁶ The same prophylactic concern drives merger policy with respect to unilateral price increases: we try to use merger policy to prevent a price increase that we will not be able to control once the merger occurs, except through a merger challenge itself.

Much attempted collusion is unsuccessful. But even failed collusion produces harmful consequences. Once the appropriate likelihood of collusion is found, those advocating a merger generally cannot defend it by showing that any collusion that might result will be undermined by cheating or widespread nonprice competition. For example, in *Hospital Corp.* the Federal Trade Commission rejected the argument that even if hospitals would be more likely to collude after a merger, all the gains from collusion would be frittered away through service competition that would accrue to the benefit of consumers.³⁷

Consumers are injured by the service competition in this situation, even if the competition effectively reduces the cartel's profits to zero. A very simple example should illustrate. Suppose that under competition most consumers purchase automobiles without portable built-in televisions as an option. The televisions cost the manufacturer \$300 to install. Under collusion which raises the price \$300 above their costs, however, the car makers compete on package rather than price, and many throw the television in at no additional charge. Even assuming that the automobile makers' cartel profits are reduced to zero by this nonprice competition, customers are still injured. By assumption, the customers had been unwilling to pay \$300 for the television as an option, so while the value they place on it is very likely more than zero, it is less than \$300. The underlying rationale of merger policy is that consumers are entitled to a market in which both price and the package of services offered is established by competition.

Mergers and Exclusionary Practices; Predatory Pricing; Private Challenges³⁸

From the 1970s into the 1990s merger law was dominated by an underlying concern with

³⁶ See *FTC v. Elders Grain*, 868 F.2d 901, 905 (7th Cir. 1989), which approved a preliminary injunction against a merger, noting:

The penalties for price-fixing are now substantial, but they are brought into play only where sellers actually agree on price or output or other dimensions of competition; and if conditions are ripe, sellers may not have to communicate or otherwise collude overtly in order to coordinate their price and output decisions; at least they may not have to collude in a readily detectable manner.

³⁷ *Hospital Corp. of Am.*, 106 F.T.C. 361 (1985), affirmed, 807 F.2d 1381 (7th Cir. 1986), cert. denied, 481 U.S. 1038, 107 S. Ct. 1975 (1987).

³⁸ On private merger challenges generally, see Herbert Hovenkamp, *Federal Antitrust Policy* § 16.3a (4th ed. 2011).

collusion or oligopoly behavior. Beginning in the 1990s enforcers began to look increasingly at unilateral effects, and such analysis may very well dominate merger law today.³⁹ The possibility that a merger might facilitate single firm exclusionary practices is not developed in the Merger Guidelines and has played only a minor role in horizontal merger policy. Nevertheless, in the relatively small number of merger cases brought by private plaintiffs, the underlying rationale is most often exclusionary practices such as predatory pricing.⁴⁰

Any merger that creates a post-merger firm large enough to "monopolize" one of the markets in which it operates is also anticompetitive under the Guidelines standards. For example, the Agencies would probably challenge a merger creating a post-merger firm with a 50% market share in a properly defined relevant market with high barriers to entry. But even a 50% firm would not be a monopolist. As a result, most private merger claims represent a disagreement between the enforcement agencies and private enforcers (who are most often competitors) about the relevant market, ease of entry, or efficiency consequences of the merger. Alternatively, they may represent instances of anticompetitive mergers that the agencies decided not to pursue because the market was too small or agency resources were inadequate. However, there is little evidence that this is happening in any systematic way. In sum, whether the persistence of private suits on monopolistic theories is good or bad depends on how well one thinks the public agencies are doing their job. If they are vigorous in their enforcement, and most competitor suits are complaints about the post-merger firm's increased efficiency, then perhaps the remedy is to eliminate competitor suits altogether.

Alternatively if one thinks that the agencies are not sufficiently aggressive or that ideology sometimes prevents them from seeing certain types of anticompetitive consequences, then perhaps it is a good idea to continue to permit competitor challenges to mergers. But assuming that we permit such challenges, what should the substantive standard be? Section 7 condemns mergers that "may" substantially lessen competition. Does that mean that a competitor

³⁹ See *Id.*, § 12.3.

⁴⁰ Private firms frequently allege that mergers will facilitate predatory pricing or other exclusionary practices. For example, *Cargill v. Monfort of Colorado*, 479 U.S. 104, 107 S. Ct. 484 (1986); *R.C. Bigelow, Inc. v. Unilever N.V.*, 867 F.2d 102 (2d Cir.), cert. denied, 493 U.S. 815, 110 S. Ct. 64 (1989); *Phototron Corp. v. Eastman Kodak Co.*, 842 F.2d 95 (5th Cir.), cert. denied, 486 U.S. 1023, 108 S. Ct. 1996 (1988); *Ernest W. Hahn, Inc. v. Codding*, 615 F.2d 830 (9th Cir.), on remand, 501 F.Supp. 155 (N.D.Cal.1980); *Remington Prods. v. North American Philips Corp.*, 717 F.Supp. 36 (D.Conn. 1989); *Tasty Baking Co. v. Ralston Purina*, 653 F.Supp. 1250 (E.D.Pa. 1987); *Chrysler Corp. v. General Motors Corp.*, 589 F.Supp. 1182 (D.D.C. 1984).

However, a significant minority of private merger actions are brought by consumers and the underlying theory is that the merger caused a price increase. See, e.g., *Midwestern Machinery, Inc. v. Northwest Airlines, Inc.*, 167 F.3d 439 (8th Cir. 1999). Other claims are much more idiosyncratic, involving plaintiffs such as losing bidders for the acquired firm. See, e.g., *Gulf States Reorganization Group, Inc. v. Nucor Corp.*, 466 F.3d 961, 966-968 (11th Cir. 2006) (granting standing to losing bidder); *Expert Masonry, Inc. v. Oone Cty., Kentucky*, 440 F.3d 336 (6th Cir. 2006) (denying standing to losing bidder).

who fears predatory pricing can challenge the merger on the theory that predatory pricing has now become a structural possibility? Or must the plaintiff also show (perhaps on the basis of subjective evidence) that this particular post-merger firm is actually bent on predation?

In the case of collusion-facilitating theories, evidence of the first kind is generally all we need. That is, we do not require a showing that the firms in the post-merger market actually intend to fix prices; we simply require proof that the market is significantly more conducive to certain kinds of collusive or oligopoly behavior than it had been before.

But there are two good reasons for thinking that this should not be the standard in cases alleging that the merger will facilitate exclusionary practices. *First*, oligopoly behavior is a more-or-less inherent feature of many highly concentrated markets. As a general matter it would be irrational for firms to behave like competitors in a sufficiently concentrated market conducive to coordinated behavior. By contrast, exclusionary practices, particularly the risky ones such as predatory pricing, are not *inherent* in any market structure. About the most we can say is that under certain market structures predatory pricing may become an option for firms, but firms will not necessarily take the option. Were the contrary true, we could condemn firms of predation without the need to look at the relation between prices and costs. We would simply look at the underlying structural characteristics of the market.⁴¹

So if we say that certain mergers facilitate collusion, while others facilitate predatory pricing, we are really using the word "facilitate" in two different ways. For that reason, courts are well advised to require private plaintiffs to show not only that a particular merger will make a certain exclusionary practice plausible (or more plausible than it had been before the merger), but also that the firm has a history of engaging in the practice or some fairly specific plans for engaging in the practice in the future, or that the merger *commits* the firm in some way to engaging in the practice.⁴²

In the *Cargill* case, the competitor plaintiff did not even survive the first step. The merger was assumed to create a post-merger market share of 21%, and the court concluded that this was not large enough to make predatory pricing plausible, even if it had been properly alleged.⁴³ The Supreme Court's *Brooke* decision made clear that predatory pricing will not be found unless it can be shown that the payoff, or recoupment, will be sufficiently large to make predation a profitable strategy.⁴⁴ Further, this standard applies *even* when predation is being analyzed under the aggressive standards of the Robinson–Patman Act—a standard which, incidentally, is articulated in language virtually identical to the "may substantially lessen competition" language of § 7.⁴⁵ *Brooke* thus suggests that when a private plaintiff is challenging a merger on the theory

⁴¹ See Hovenkamp, Federal Antitrust Policy, § 8.4.

⁴² That is to say, the merger creates the situation where it would be irrational for the firm not to commit an exclusionary practice.

⁴³ *Cargill v. Monfort of Colo.*, 479 U.S. 104, 119, 107 S. Ct. 484, 494 (1986).

⁴⁴ *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 113 S. Ct. 2578 (1993).

⁴⁵ The Robinson–Patman Act reaches conduct "where the effect * * * may be substantially to lessen competition or tend to create a monopoly in any line of commerce, or to injure, destroy, or prevent

that it will facilitate predation, at the very least the Court must do a full structural analysis such as the one employed in that case in order to determine whether a rational profit-maximizing firm, operating after the merger, would find predation a profitable strategy. This requires a showing of high entry barriers, highly successful oligopoly behavior and other structural features indicating that the payoff to predation will exceed its costs.⁴⁶ Indeed, if the private plaintiff is able to make this showing, then it *has* demonstrated that the government enforcement agencies are not doing their job. Any merger satisfying this test should have been condemned on ordinary collusion facilitating grounds.

A second reason for applying a higher standard to merger claims alleging future predation or other exclusionary practices is that the latter practices are *independently* illegal and most often readily detectable. As a result, there is less need for the extra margin of deterrence that we apply to mergers facilitating oligopoly coordination or harmful unilateral price increases. We condemn mergers that facilitate oligopoly under a fairly aggressive standard because the oligopoly itself, once it has been achieved, is most generally out of antitrust's reach.⁴⁷ To be sure, this is not a complete answer: the social cost of an anticompetitive practice can be minimized if we can reach the practice before rather than after it occurs. But importantly, the other antitrust laws have their own deterrent effects if they are properly applied. The post-merger firm bent on predation must still compare the anticipated benefits against the risk of detection and prosecution.⁴⁸ However, the firm in the oligopoly industry is free to set its price unilaterally with little antitrust concern.

Suppose the claim is not predatory pricing, but some other kind of exclusionary practice. In such cases private complaints challenging the merger itself must be confined to (a) results that are actually caused by the merger; and (b) results that flow from the *anticompetitive consequences* of the merger. For example, when upstream competitors who use territorial distributors merge, the merger may make one set of distributors superfluous. One distributor can now be used to distribute the product of both pre-merger firms. In this case the termination of the unlucky distributors would be "caused" by the merger, but it would have nothing whatsoever to do with the merger's anticompetitive consequences. This kind of integration could easily result from the merger of two minuscule firms in a highly competitive market.⁴⁹

One kind of claim that seems superficially plausible is that the merger will permit the post-merger firm a greater amount of leverage with downstream or upstream rivals. For example, suppose that a firm making four variations of a differentiated product merges with another firm that makes four variations. Retail shelf space is at a premium, and a retailer often has room for only six or eight variations. The merger may make it easier for the post-merger firm to "monopolize" retailer shelf space by exclusive dealing, or perhaps by insisting that the retailer

competition with any person who either grants or knowingly receives the benefit of such discrimination.
* * * " 15 U.S.C.A. § 13(a).

⁴⁶ See Hovenkamp, Federal Antitrust Policy, §§ 8.4, 8.8.

⁴⁷ *Id.*, § 4.4.

⁴⁸ *Id.*, § 8.4.

⁴⁹ For elaboration, Hovenkamp, Federal Antitrust Policy, § 16.3a.

carry its full line.⁵⁰

Even here there are analytic problems. If the market was properly defined in the first place, such mergers should be illegal under ordinary collusion-facilitating grounds. The firm in the above example "dominates" the shelf space. If the shelf space is essential to distribution, this firm presumably dominates a relevant market as well. Challenges to such mergers generally result from differences of opinion between the enforcement agency and the private plaintiff concerning the scope of the relevant market. But of course, private plaintiffs are entitled to prove relevant markets and anticompetitive effects even if the enforcement agencies disagree.

⁵⁰ See *Bigelow*, note 40 (post merger firm would monopolize shelf space for herbal teas); *Tasty Baking*, note 40 (post-merger firm would use its leverage with retailers to dominate resale of snack cakes and pies).

II. Efficiency and Merger Policy

Horizontal mergers can create substantial efficiencies even as they facilitate collusion or enlarge market power. Courts and other policy makers have entertained three different positions concerning efficiency and the legality of mergers:

- 1) mergers should be evaluated for their effect on market power or likelihood of collusion, and efficiency considerations should be largely irrelevant;
- 2) mergers that create substantial efficiencies should be legal, or there should be at least a limited "efficiency defense" in certain merger cases;
- 3) mergers should be condemned *because* they create efficiencies, in order to protect competitors of the post-merger firm.

The Dubious Legacy of the Warren Era

The merger policy of the Warren Court in the 1960's adopted the third proposal: it condemned mergers *because* they created certain efficiencies. For example, in *Brown Shoe Co. v. United States* the Supreme Court held that a horizontal merger between competing retailers of shoes was illegal because the large, post-merger firm could undersell its competitors. The Court concluded that Congress desired "to promote competition through the protection of viable, small, locally owned businesses," and the creation of a large company with lower costs would frustrate this goal. "Congress appreciated that occasional higher costs and prices might result from the maintenance of fragmented industries and markets," the Supreme Court acknowledged, but it "resolved these competing considerations in favor of decentralization."¹

The district court in *Brown Shoe* had been even more explicit about its reasons for condemning the merger:

[I]ndependent retailers of shoes are having a harder and harder time in competing with company-owned and company-controlled retail outlets. National advertising by large concerns has increased their brand name acceptability and retail stores handling the brand named shoes have a definite advertising advantage. Company-owned and company-controlled retail stores have definite advantages in buying and credit; they have further advantages in advertising, insurance, inventory control * * * and price control. These advantages result in lower prices or in higher quality for the same price and the independent retailer can no longer compete * * *²

¹ 370 U.S. 294, 344, 82 S. Ct. 1502, 1534 (1962).

² *United States v. Brown Shoe Co.*, 179 F.Supp. 721, 738 (E.D.Mo. 1959). The Federal Trade Commission took the same position. See *In re Foremost Dairies, Inc.* 60 F.T.C. 944, 1084 (1962), modified, 67 F.T.C. 282 (1965) concluding that efficiencies resulting from a merger were bad because they gave post-merger firms a "decisive advantage" over "smaller rivals."

Brown Shoe's critics have attacked the opinion for protecting competitors at the expense of consumers.³ But any such critique must come to terms with the relatively clear legislative history of the 1950 Celler–Kefauver Amendments to § 7. The *Brown Shoe* opinion read it correctly. In 1950 protection of the "viability" of small businesses who were being "gobbled up" by larger companies was much more on Congress's mind than low consumer prices or high product quality.⁴

Brown Shoe and successor cases such as *Von's Grocery*⁵ can be criticized, however, not for the goals they chose but for their efficacy in achieving them. *Von's* involved a merger between the third largest and the sixth largest grocery chains in greater Los Angeles. The market was unconcentrated, however, and the combined share of these two chains was 7.5% of sales. Both chains were family owned and operated. The largest firm in the market, which was not a party to the merger, had a market share of only 8%. The market exhibited a "trend" toward concentration with many individual stores being purchased by chains, suggesting that the larger chains were able to undersell the smaller chains and the individual mom-and-pop grocers.

If a medium-sized chain is prevented from acquiring existing stores, it likely will respond by building new stores of its own, particularly if expansion will strengthen its position vis-a-vis larger chains. The result will be that very small chains or single store companies will find themselves unable to compete with larger firms, and unable to sell their stores to competitors. Not only will they lose the power to compete, but they might also lose most of the value of their most substantial capital asset—their stores.⁶ It is therefore far from clear that the rule of *Brown Shoe* and *Von's Grocery* gave small businesses the kind of protection that Congress had in mind.

Assessing the Efficiency Effects of Horizontal Mergers

The Welfare "Tradeoff" Model

The rule that mergers should be condemned because they create efficiency has been abandoned. The opposite position is that mergers should be legal when they create substantial efficiencies—or alternatively, that there should be an "efficiency defense" in merger cases. Although the trail is still somewhat obscure, the courts are heading in the direction of adopting such a rule, and the government's Merger Guidelines explicitly recognize and define an "efficiency defense." Importantly, the rule comes into play *only* after the merger has been found presumptively anticompetitive by structural and behavioral analysis.⁷ If a merger poses no competitive threat to begin with, then analysis of possible efficiencies is unnecessary.

³ For example, Robert H. Bork, *The Antitrust Paradox: A Policy at War With Itself* 198–216 (1978; rev. ed. 1993).

⁴ See Derek Bok, Section 7 of the Clayton Act and the Merging of Law and Economics, 74 *Harv.L.Rev.* 226, 234 (1960); Herbert Hovenkamp, *The Antitrust Enterprise: Principle and Execution*, Ch. 9 (2004).

⁵ *United States v. Von's Grocery Co.*, 384 U.S. 270, 86 S. Ct. 1478 (1966).

⁶ See Richard A. Posner, *Antitrust Law* 129 (2d ed. 2001).

⁷ See Herbert Hovenkamp, *Federal Antitrust Policy* §§ 12.3–12.6 (4th ed. 2011) (in press).

The argument for an "efficiency defense" in merger cases is illustrated by the graph in Figure 1 (next page).⁸ The graph illustrates a merger that gives the post-merger firm measurably more market power than it had before the merger. As a result, the firm reduces output from Q_1 to Q_2 on the graph, and increases price from P_1 to P_2 . Triangle A_1 represents the monopoly "deadweight loss" created by this increase in market power.⁹

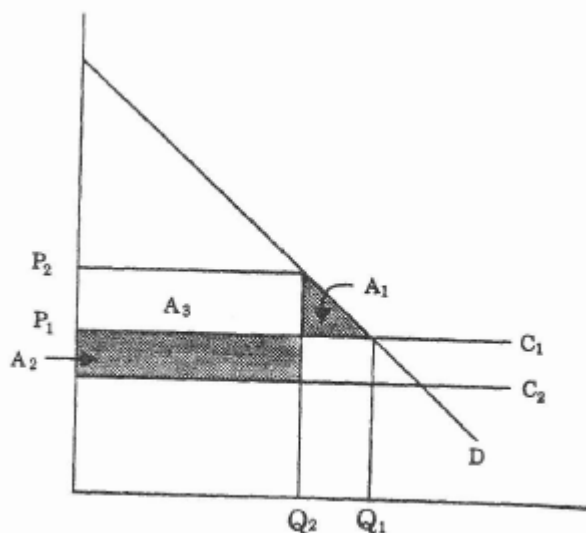


Figure 1

At the same time, the merger produces measurable economies, which show up as a reduction in the firm's costs from C_1 to C_2 . Rectangle A_2 represents efficiency gains that will result from these economies. If A_2 is larger than A_1 the merger produces a *net* efficiency gain, even though it permits the firm to raise its price above its marginal cost. Furthermore, A_2 is often larger than A_1 . The efficiency gains illustrated by A_2 are spread over the entire output of the post-merger firm. The deadweight losses in A_1 are spread over only the reduction in output. If the post-merger firm reduced its output by 10%, each of the 90% of units still being produced would contribute to the efficiency gains; the deadweight loss, however, would accrue over only the 10% reduction.

Williamson concluded that in a market with average elasticities of demand and supply, a

⁸ The source is Oliver E. Williamson, *Economies as an Antitrust Defense: the Welfare Trade-Offs*, 58 *Amer.Econ.Rev.* 18 (1968); see also, Oliver E. Williamson, *Economies as an Antitrust Defense Revisited*, 125 *U.Pa.L.Rev.* 699 (1977); Robert Pitofsky, *Efficiencies in Defense of Mergers: Two Years After*, 7 *Geo. Mason L. Rev.* 485 (1999); Craig W. Conrath & Nicholas A. Widnell, *Efficiency Claims in Merger Analysis: Hostility on Humility*, 7 *Geo. Mason L. Rev.* 685 (1999) Timothy R. Muris, *The Efficiency Defense Under Section 7 of the Clayton Act*, 30 *Case West.Res.L.Rev.* 381 (1980); Alan A. Fisher & Robert H. Lande, *Efficiency Considerations in Merger Enforcement*, 71 *Calif.L.Rev.* 1580 (1983); Herbert Hovenkamp, *Merger Actions for Damages*, 35 *Hastings L.J.* (1984); 4A *Antitrust Law* ¶¶ 970–976 (3d ed. 2009).

⁹ See the discussion of the social cost of monopoly in Hovenkamp, *Federal Antitrust Policy*, § 1.3b.

merger that produced "nontrivial" economies of 1.2% would be efficient, even if it resulted in a price increase of 10%.¹⁰

Williamson's analysis is vulnerable to some criticism. First, his description of triangle A_1 in the figure as the efficiency costs of a merger understates the true social cost. Rectangles A_2 plus A_3 represent potential monopoly profits to the post-merger firm. A profit-maximizing firm will be willing to spend substantial resources in an effort to acquire or retain a certain amount of monopoly power.¹¹ If a particular merger will give a firm \$1,000,000 in additional monopoly profits, the firm will spend up to \$1,000,000 in order to accomplish the merger and then retain its monopoly position. It could spend this money in highly inefficient ways, such as espionage, predatory pricing against a potential take-over target, or vexatious litigation. At the extreme, $A_2 + A_3$ are not increased profits to the post-merger firm at all, but funds inefficiently spent in order to give the firm its market position. Importantly, the anticompetitive risk in the merger case is not increased likelihood of single-firm monopoly, but increased likelihood of collusion. The costs of managing a cartel or oligopoly can be quite high in relation to the profits that it produces.¹² A cartel or oligopoly that occasions a price increase of 10% would very likely produce much smaller gains in profitability.¹³

Another problem of the tradeoff model is that it apparently assumes a merger to monopoly. But most collusion facilitating mergers involve firms whose aggregate share is significantly less than 100%. For example, suppose a 20% firm should acquire a 10% firm, greatly increasing the extent of oligopoly performance. In that case, the increased coordination that results from the merger enables *both* the merging and the non-merging firms to increase their prices. However, the efficiency gains are spread across only the output of the two merging firms, which account for only 30% of the market's output.¹⁴

Must Efficiencies be "Passed On"?

Still another problem of the welfare tradeoff model of merger efficiencies is that it treats all efficiency gains the same way, no matter who gets the benefit. Suppose that two firms selling widgets at a competitive price of \$1.00 merge. As a result of the merger the post-merger firm has enough market power to reduce output and increase the price of widgets to \$1.05. In addition, the firm's marginal costs drop from \$1.00 per widget to 95 cents per widget. In this case the

¹⁰ Note 8, 58 Amer.Econ.Rev. at 22–23. Compare Alan A. Fisher, Frederick I. Johnson & Robert H. Lande, Price Effects of Horizontal Mergers, 77 Calif. L. Rev. 777 (1989), noting that large efficiency gains are needed if a merger creating market power is to result in lower prices. That is, Williamson's welfare "tradeoff" is indifferent to whether the efficiency gains are passed on to consumers as lower prices or retained by the merging firms as increased profits.

¹¹ See Hovenkamp, Federal Antitrust Policy, § 1.3c.

¹² See Hovenkamp, Federal Antitrust Policy, § 4.3.

¹³ The true social cost of Williamson's merger is the sum of (a) the deadweight loss and (b) the resources inefficiently spent in maintaining the cartel or oligopoly facilitated by the merger, less (c) the total wealth accruing to the post-merger firm from the monopoly overcharge and the efficiency gain.

¹⁴ For further development, see 4A Antitrust Law ¶ 970e (3d ed. 2009).

efficiency gains, which are measured across all widgets produced, will probably be larger than the deadweight loss from monopoly pricing, which is measured across only the reduction in output. However, the merger results in an *actual* output reduction and an *actual* price increase for consumers. Although the overall effect of the merger is efficient, the benefits of the increased efficiency accrue mainly to the post-merger firm in the form of higher profits. Such a merger rule would undoubtedly be politically unacceptable, even though the rule promotes efficiency. Several courts have suggested that an efficiency defense should be rejected where the parties cannot show that the gains will be passed on to consumers.¹⁵

At the same time, a rule requiring *all* efficiency gains to be passed on to consumers is unacceptable as well. First, it would completely undermine the principal motivation for firms to merge in the first place, which is to lower their costs. A rule that forbids firms from pocketing any of the gains of increased merger efficiency would serve as a significant deterrent to efficiency-producing mergers that have crossed the threshold of presumptive legality.¹⁶ Indeed, when two perfect competitors merge, they pocket all of their efficiency gains and nothing is passed on. For example, if two of the nation's 100,000 corn farmers should merge, thus lowering their costs, they will continue to sell at the market price and the market price will not respond to their merger, because they are too small to have any effect. As a result of the merger these firms will increase their output; they will not cut their price.¹⁷

A more acceptable rule that takes both economic and political concerns into account is that the defendants must show that efficiencies created by the merger are sufficiently large to keep post-merger prices at or below pre-merger levels.¹⁸ For example, if a merger threatens monopoly or oligopoly raising the price from the pre-merger level of \$1.00 to \$1.10, efficiencies must be sufficient to drive the post-merger price back to the \$1.00 range or lower. The 2010 Horizontal Merger Guidelines do not quite declare flatly that they will challenge any merger whose efficiency effects are insufficient to reverse a price increase completely. Rather they state the the efficiencies must be “of a character and magnitude such that the merger is not likely to be anticompetitive in any relevant market.” The enforcement Agency will then “consider whether cognizable efficiencies likely would be sufficient to reverse the merger’s potential to harm

¹⁵ *FTC v. University Health*, 938 F.2d 1206, 1222–23 (11th Cir.1991) (defendant “must demonstrate that the intended acquisition would result in significant economies and that these economies ultimately would benefit competition and, hence, consumers”); *United States v. United Tote*, 768 F.Supp. 1064, 1084–85 (D.Del.1991) (rejecting efficiency defense in part because there was “no guarantee that these benefits will be passed along” to consumers); *American Medical Int'l*, 104 F.T.C. 1, 213–20 (1984), amended, 104 F.T.C. 617 (1984) (efficiencies defense failed because even assuming “that these cost savings can be realized, AMI does not establish that they will necessarily inure to the benefit of consumers”).

¹⁶ Of course, efficiency producing mergers in more competitively structured markets would still be pursued, for these mergers would never cross the threshold of presumptive illegality in the first place.

¹⁷ See 4A Antitrust Law ¶ 971 (2d ed. 2009); Timothy R. Muris, *The Government and Merger Efficiencies: Still Hostile After All These Years*, 7 *Geo. Mason L. Rev.* 729 (1999); Paul L. Yde & Michael G. Vita, *Merger Efficiencies: Reconsidering the “Passing-on” Requirement*, 64 *Antitrust L.J.* 735 (1996).

¹⁸ See 4A Antitrust Law ¶ 971d (3d ed. 2009).

customers in the relevant market, e.g., by preventing price increases in that market.” The Guidelines also add in a footnote that the Agency will generally focus on the immediate price impact of a merger. They will not necessarily ignore, but they will give less weight to efficiencies that are likely to result only over the longer run.¹⁹

Efficiencies Must be "Merger-Specific" and "Extraordinary"

The welfare tradeoff model has force only because we assume that the efficiencies in question could not readily be obtained by means other than merger. But many efficiency gains can be attained by other means, although perhaps less readily. For example, a merger may result in the termination of an inefficient CEO and his replacement by a more aggressive one, but stockholders or an attentive Board of Directors could do the same thing, and probably will do so eventually.²⁰ A merger might facilitate a firm's simplification of its distribution system or specialization of its plants, but these things would very likely happen without the merger as well. They might simply take longer.

Questions about the availability of alternative routes to efficiency are vexing, and explain why the efficiency defense has been successful so infrequently.²¹ Suppose that the claimed efficiency is that the acquirer needs to modernize and the cheapest way to do so is to acquire another firm's recently built modern plant.²² Unquestionably, modernization is efficient and anything that reduces the cost of modernization must be efficient as well. But the defense makes sense only if the acquired firm's plant has excess capacity;²³ if it does not, then the post-merger firm must continue to use the old plants as well or perhaps reduce output to the level previously produced by the acquired firm alone. The argument might be that adding to the existing modern plant is cheaper than building a second free-standing plant, but adding would require the two firms to be one. However, then we would want to know why the *acquired* firm cannot simply enlarge its capacity on its own: that is, competition rather than merger most usually solves such problems.²⁴

¹⁹ 2010 Horizontal Merger Guidelines, §10 & n. 15. The footnote observes that if the efficiencies relate mainly to fixed costs they will be unlikely to show up in the very short term, but may appear in the longer run. In particular, the Guidelines add in the that efficiencies in the conducting of research and development will not likely affect short term prices.

²⁰ See *FTC v. Owens-Illinois, Inc.*, 681 F.Supp. 27, 53 (D.D.C.), vacated as moot, 850 F.2d 694 (D.C.Cir. 1988) (accepting this defense).

²¹ For a description of the various types of merger economies, querying which ones are merger specific and which are not, see 4A Antitrust Law ¶¶ 973, 975 (3d ed. 2009).

²² For example, *FTC v. H.J. Heinz Co.*, 246 F.3d 708 (D.C.Cir. 2001); *United States v. Rice Growers Assn. of Cal.*, 1986-2 Trade Cas. ¶ 67287, 1986 WL 12561 (E.D.Cal. 1986).

²³ Furthermore, we want to be sure that the excess capacity is not a result of collusion.

²⁴ Cf. *United States v. Rockford Memorial Corp.*, 717 F.Supp. 1251, 1290-91 (N.D.Ill. 1989), aff'd, 898 F.2d 1278 (7th Cir.), cert. denied, 498 U.S. 920, 111 S. Ct. 295 (1990) (rejecting argument that merger would lead to efficient standardization of procedures where hospitals independently could have achieved standardization); *FTC v. Staples*, 970 F.Supp. 1066, 1090 (D.D.C. 1997) (rejecting proffered defense that

One plausible alternative to merger is a joint venture, particularly where the efficiency gains are in such activities as research and development. Joint participation in R & D can be highly efficient and, if properly limited, need not raise significant concerns about coordination of prices or output. The same thing is frequently true of intellectual property licensing, which can enable firms to share a technology while continuing to compete with each other in other ways.²⁵

Finally, one must keep in mind that the concentration standards for assessing mergers²⁶ are premised on the proposition that all mergers produce some efficiency gains. As a result, they take into account the "ordinary" efficiency gains that can be expected to result from a merger.²⁷ The kinds of efficiencies that qualify for the defense must be "extraordinary," going beyond these expected savings.

In any event, if a merger poses a significant competitive threat, the proponents of the merger will have the burden not only of showing that significant and extraordinary economies will result, but also that these economies could not readily be attained by means other than the merger.

Problems of Identification and Measurement

A final problem with the welfare tradeoff model is that courts are simply unable to make the measurements that its analysis would require. Efficiencies, Judge Posner has written, present "intractable" problems of measurement.²⁸ Our knowledge that mergers can produce both economies and monopoly pricing is fairly secure. However, quantifying either of these in a particular merger case is impossible. Most mergers found illegal under current law probably create efficiencies. They are condemned, however, because no court is capable of balancing the increase in market power or the potential for collusion against the economies achieved. Judges must necessarily make decisions based on the information they can obtain and understand. When a merger involves companies having a small share of the market, they infer that the potential for monopolistic pricing or collusion is trivial; therefore, the merger must be calculated to increase the efficiency of the post-merger firm. If the merger involves firms large enough to threaten competitive pricing significantly, however, then the measurement problem quickly becomes insoluble unless we create some simplifying rules. Such rules could not involve any kind of precise "balancing" of harm to competition vs. efficiency gains. Rather, they should

merger among office superstores was justified by lower purchase prices for inventory; finding in part that the savings could have been realized without the merger); *United States v. Ivaco*, 704 F.Supp. 1409, 1425–27 (W.D.Mich. 1989) (non-horizontal or more limited joint venture could have achieved same efficiency results with less injury to competition). See generally Robert Pitofsky, *Proposals for Revised United States Merger Enforcement in a Global Economy*, 81 *Geo. L.J.* 195, 242 (1992).

²⁵ See generally 4A *Antitrust Law* ¶ 973c (3d ed. 2009).

²⁶ See Hovenkamp, *Federal Antitrust Policy*, § 12.4b.

²⁷ See, e.g., *FTC v. Staples*, 970 F.Supp. 1066, 1090 (D.D.C. 1997) (rejecting savings in employee health insurance costs as a qualifying efficiency); and see 4A *Antitrust Law* ¶ 974a (3d ed. 2009).

²⁸ Posner, note 6, at 133.

operate so as to create a complete defense when both "substantial" and "merger specific" economies are shown. In this case, "substantial" means that the efficiencies be great enough to warrant an inference that post-merger prices will be no higher than pre-merger levels, with the burden of proof on the defendant.

Nevertheless, measurement problems abound. In the baby food case the firms argued that a merger between Heinz and Beech–Nut would produce significant economies because Beech–Nut was currently producing out of an ancient plant with very high operating costs.²⁹ By contrast, Heinz had a modern efficient plant that was underutilized. As a result of the merger Beech–Nut's production would be switched to the Heinz plant.

This is a viable efficiencies claim in principle, although in this particular case the court concluded that cost savings of sufficient magnitude were not proven. While the merger led to lower production costs, it was impossible to determine how much of the relevant costs were costs of production and how much were costs that could not be reduced. To illustrate, suppose that the production of strained peas for babies requires two inputs, peas and processing. The peas themselves cost \$200 a ton and processing them at the outmoded Beech–Nut plant costs \$10 per ton. A more efficient plant reduces the cost of processing, but it cannot do anything about the market price of peas. In that case a 40 percent reduction in processing costs, to \$6 per ton, would amount to about a 2 percent reduction in overall costs. Premerger costs would be \$210 per ton, and post-merger costs would be \$206 per ton. By contrast, the collusion risk would apply to the entire finished product and to all firms making that product. In the actual case the merger reduced the number of significant firms from three to two, and the two merging parties had been particularly strong rivals for second place to Gerber, the market leader. Their merger very likely would have led to a significant price increase.

It is also important to distinguish between real efficiencies and mere pecuniary gains. For example, a merger may have favorable tax consequences that reduce a firm's costs.³⁰ But in this case the tax savings to the firm are offset by tax revenue losses to the government, and cannot be counted as a qualifying gain from the merger.

Most of the courts that have considered the efficiency defense have been skeptical. Most have rejected it,³¹ although a few have recognized the defense.³²

²⁹ *FTC v. H.J. Heinz Co.*, 246 F.3d 708 (D.C.Cir. 2001).

³⁰ See John E. Kwoka & Frederick R. Warren–Boulton, *Efficiencies, Failing Firms and Alternatives to Merger: A Policy Synthesis*, 31 *Antitrust Bull.* 431, 433 (1986).

³¹ *FTC v. University Health, Inc.*, 938 F.2d 1206, 1222–1224 (11th Cir. 1991); *United States v. Rockford Memorial Corp.*, 717 F.Supp. 1251, 1289–1291 (N.D.Ill. 1989), affirmed, 898 F.2d 1278 (7th Cir.), cert. denied, 498 U.S. 920, 111 S. Ct. 295 (1990) (requiring clear and convincing evidence of efficiencies; standard not met); *FTC v. Staples*, 970 F.Supp. 1066 (D.D.C. 1997) (insufficient evidence of efficiencies).

³² See *Owens–Illinois*, note 20, 681 F.Supp. at 53 (accepting defenses that acquiring firm was more efficiently managed than acquired firm, and latter would benefit from improved management; economies of multiplant operations).

Benefit and Threat in Different Markets

When firms operate in multiple markets the anticompetitive threat may occur in one market while the efficiency gains show up in a different market. Recognizing an efficiency defense in such a case seems inconsistent with the language of § 7 of the Clayton Act, which condemns a merger "where in any line of commerce or ... in any section of the country, the effect ... may be substantially to lessen competition...."³³ Further, recognizing an efficiency defense in such a case forces merger policy to permit an injury to consumers in the product where the anticompetitive threat occurs, but benefitting a different set of consumers in the market where the efficiencies are realized.³⁴

In some cases the problem goes away if the firms can structure a partial divestiture. For example, if the two firms manufacture widgets and gidgets and the merger promises anticompetitive effects in the widget market and efficiency gains in the gidget market, the government might condition its approval on a divestiture of one or more widget plants. Of course, this will not be possible when the two products are manufactured in the same plants, or when they are complements, such as leather and beef, that cannot be separated. In such cases the merger must be condemned, with a possible exception for situations where the market in which efficiencies result is significantly larger than the market in which competition is threatened.³⁵

³³ 15 U.S.C.A. § 18.

³⁴ E.g., *United States v. Philadelphia National Bank*, 374 U.S. 321, 370, 83 S. Ct. 1715, 1745 (1963) (rejecting defense that a merger that lessened competition in one market should be approved because it increased competition in a different market); *United States v. Bethlehem Steel Corp.*, 168 F.Supp. 576, 618 (S.D.N.Y. 1958) (anticompetitive consequences in one region could not be offset against lower prices and reduced freight charges in another region).

³⁵ See generally 4A Antitrust Law ¶ 972c (3d ed. 2009).

III. Estimating Anticompetitive Consequences I: Mergers Facilitating Unilateral Price Increases

Introduction

The anticompetitive consequences of mergers can be grouped under two general headings. Under the first comes mergers that permit the post-merger firm to make a significant price increase, while other firms in the market either keep their price the same or take a much smaller increase. The second classification includes mergers that facilitate collusion or other forms of coordinated interaction, thus permitting all firms in the market to increase their price.

Merger to Monopoly

The "classic" example of a merger facilitating a unilateral price increase is the merger to monopoly.¹ Such mergers deserve the highest level of antitrust scrutiny, and generally should be condemned even if barriers to entry are low. The need for rivals to be permitted to exist and grow is simply too important in such a market.

Suppose that the antitrust rule were that mergers to monopoly were legal in a market with low entry barriers. As each new entrant came into the market, it could expect an offer to be bought up by the dominant firm. Further, each of those offers would be profitable, for the value of being able to participate in a monopoly would be greater than the value of being a competitive rival against a dominant firm.²

Dominant Firm's Acquisition of Nascent Rival

Closely related to the merger to monopoly is the monopolist's or near monopolist's acquisition of new rivals as they enter the market.³ For example, suppose a firm with a 90% market share purchases small firms as they enter into prospective competition. To be sure, economies of scale may explain why the market has a dominant firm, and they may even explain why a small rival will not survive very long. But they do not serve to justify a policy of permitting dominant firms to acquire small rivals. New technologies have often displaced old

¹ See 4 Antitrust Law ¶ 911 (3d ed. 2009).

² The Coase Theorem predicts that in a well functioning market two firms will bargain their way to a joint maximizing result. Since the monopoly produces greater profits than competition, each new entrant will agree to be bought up by the dominant firm and the market will never become competitive. See Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & Econ. 1 (1960).

Contrast *United States v. Syufy Enters.*, 903 F.2d 659 (9th Cir. 1990), which refused to condemn an exhibitor's acquisition of competing exhibitors when the immediate market share created was nearly 100 percent, but the acquisition was followed almost immediately by entry and dramatic expansion reducing the defendant's share to less than forty percent.

³ See 4 Antitrust Law ¶ 912 (3d ed. 2009).

ones, even when the old ones were subject to significant economies of scale. Further, attainment of further economies rarely justify such mergers. It would be a rare case where a 90% firm could reduce its costs by acquiring a 1% firm, and could not readily attain the same cost reductions by other means.⁴

The most likely explanation of such acquisitions is that the new rival threatens to be an aggressive competitor, or has some technology that the dominant firm wants. But in that case the effect of the merger is to prevent this new technology from developing in competition with that of the dominant firm. Of course, the general policy of the intellectual property laws is to encourage the dissemination of new technology, but in this case a *nonexclusive* license will serve that purpose quite adequately. It will permit the dominant firm to have access to the technology at issue, while not denying it to others who might enter into competition with the dominant firm.⁵

*Unilateral Effects in Product Differentiated Markets*⁶

A market is product differentiated when different seller offer distinctive variations. While their products compete with one another to greater or lesser degrees, customers distinguish among them, may have preferences for one variation over another, and may thus be willing to pay more for one variation. Our basic models of cartels and oligopoly assume absolutely undifferentiated products, but in the real world this is the exception rather than the rule. Product differentiation is relevant to the extent that (1) the product produced by one merging firm differs from that produced by another, meaning that the pre-merger competition between them is less than it would be if they produced identical output; and (2) the output of the merging firms differs from that of other firms in the market.

For the most part, Courts have tended to ignore product heterogeneity as a factor in merger law, largely because so little is known about the relationship between the degree and nature of product differentiation, and the nature and likelihood of noncompetitive results. Product differentiation has appeared much more prominently in formal economic and policy analysis of mergers. For example, in Edward Chamberlin's model of monopolistic competition,⁷ which was prominent from the 1930's through the 1960's, product differentiation was generally thought to be a bad thing that reduced output and raised prices, howbeit without increasing the returns of the firms. They spent all their resources in devising new variations, far in excess of what rational consumers would want if only they knew the cost. But an offsetting consequence of product differentiation is that collusion and oligopoly are more difficult to orchestrate. This serves to mitigate the anticipated anticompetitive effects of a merger.⁸

⁴ On the economies defense and the need for "merger specific" economies, see Hovenkamp, Federal Antitrust Policy, § 12.2b3.

⁵ See, e.g., *United States v. Baroid Corp.*, 59 Fed. Reg. 2610 (1994) (consent decree conditioning acquisition by large firm of competing technology on the granting of licenses to others).

⁶ The related theory of unilateral effects resulting from capacity constraints or differential costs is not developed here; see 4 Antitrust Law ¶ 915 (3d ed. 2009).

⁷ Edward Chamberlin, *The Theory of Monopolistic Competition* (1933).

⁸ See Hovenkamp, Federal Antitrust Policy, § 12.5a.

Chamberlin's original concern about the "monopolistic" results of product differentiation has re-emerged, found its way into the 1992 Horizontal Merger Guidelines, was expanded in the 2010 Guidelines, and has become an important part of government merger analysis. Under the right circumstances, product differentiation can give firms a bit of protected space within which supracompetitive price increases can be profitable.

The problem that the Guidelines identify is well known in the economics literature and is best illustrated by a model that economist Harold Hotelling used already in 1929.⁹ Figure 2 illustrates. Imagine a row of hot dog vendors spaced out along the beach for sale to sunbathers. In this case we presume that the product itself is identical from one vendor to the next, but the "differentiation" consists in the number of steps that each sunbather must walk in order to purchase a hot dog.¹⁰ Assuming that all hot dogs are sold at the same price, each vendor will be preferred by those sunbathers that are closest to that particular vendor.¹¹

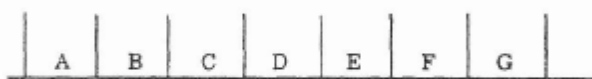


Figure 2

Each vendor looks like a monopolist with respect to those sunbathers who are closest to that vendor. That is, all sunbathers closest to A would buy from A, those closest to B would buy from B, and so on. Further, individual vendors might have *some* incentive to increase price, depending on the value that the sunbathers place on the distance they have to walk. That is, their output will not fall to zero in response to a small price increase. For example, if sunbathers valued their steps at 1 each, a vendor who increased the hot dog price by 10 (others holding their prices constant) would lose those customers for whom the difference in distance between the price increasing vendor and the next nearest vendor was less than ten steps. Whether this price increase would be profitable presents an empirical question, and depends on the location of the sunbathers. If all of the sunbather's in B's area were extremely close to B's stand and relatively far away from the stands of A and C, the price increase would more likely be profitable. By contrast, if all of B's sunbathers were arrayed just inside the boundary line equidistant between B and C, then the price increase would be unprofitable, for B would lose these sunbathers to C.

⁹ Harold Hotelling, *Stability in Competition*, 39 *Econ. J.* 41 (1929).

¹⁰ For a more fully developed example, see 4 *Antitrust Law* ¶ 914a (3d ed. 2009); and see Thomas Campbell, *Predation and Competition in Antitrust: the Case of Nonfungible Goods*, 87 *Col. L.Rev.* 1625, 1636 (1987).

¹¹ See Malcolm B. Coate, *Unilateral Effects under the Guidelines: Models, Merits, and Merger Policy* (FTC, working paper, Oct. 2008), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1263474. See also Gregory J. Werden & Luke M. Froeb, *Unilateral Competitive Effects of Horizontal Mergers*, ch. 3, in *Handbook of Antitrust Economics* (Paolo Buccirossi, ed., 2008); Jonathan B. Baker & Timothy F. Bresnahan, *The Gains from Merger or Collusion in Product-Differentiated Industries*, 33 *J. Indus. Econ.* 427, 429 (1985).

Now consider the impact of a cartel or a merger between vendor B and vendor C, followed by a joint price increase. To the left of B and the right of C, there are customers who threaten to purchase from either A or D, and that threat would be unchanged. But what about customers arrayed in the area between B and C? While these may have been on the competitive margin and would have switched in response to a price increase by *either* B or C standing alone, these customers are very clearly "captured" by cartel BC or post-merger firm BC. That is, they are a relatively great distance from A and D, and thus will be willing to pay more for a hot dog now than they would have been before the cartel or merger came into existence.

Once again, the degree to which the cartel or merger increases the profit-maximizing price of the two firms presents an empirical question, and depends on where the customers are arrayed. If most of the customers are firmly committed to either B or C, but are relatively distant from A or D, the cartel or merger could facilitate a rather large monopoly price increase. By contrast, if the customers are mainly between A and B and between C and D, but not between B and C, then the profit-maximizing post-merger price increase would be relatively lower. Finally, a higher price increase would be profitable the more isolated B and C as a pair are from A and D.

Although the story is a little harder to picture when the firms are spread out in product space rather than geographic space, it is no different in substance. The degree to which a merger in a product differentiated market might facilitate a *unilateral* price increase by the post-merger firm depends on (1) the relative "closeness" in product space of the merging firms to one another; and (2) the relative distance between the post-merger firm's product offering and the offerings of others in the market; and (3) the relative inability of other firms to redesign their products to make them close to the output of the merging firms. This requires the Agencies to consider a variety of factors about the relationship between the two merging firms, between the post-merger firm and other competitors, and between the firms and the customers of each.¹² For example, there must be a significant number of customers who regard the products of the two merging firms as particularly close substitutes.¹³ Further, it must be apparent that other firms in the market

¹² By comparison to the 1992 Guidelines, the 2010 Guidelines give greater weight to diversion ratios and the value of diverted sales and correspondingly less weight to HHI numbers in considering unilateral effects. For example, the 2010 Guidelines abandon the 35% "safe harbor" provision that had been contained in the 1992 Guidelines. Under that provision the Agencies would not "presume that a significant share of sales in the market are accounted for by consumers who regard the products of the merging firms as their first and second choices" unless the combined market share of the merging firms was at least 35%. See 1992 Guidelines, §2.2.11. On this point the 2010 approach is clearly correct. Even two firms with relatively small market shares can effect a price increase provided that they are sufficiently close in product space while most other firms are more remote.

¹³ 2010 Horizontal Merger Guidelines, § 6.1. See also *F.T.C. v. Whole Foods Market, Inc.*, 548 F.3d 1028 (D.C. Cir. 2008) (siding with FTC and concluding that there could be a much narrower market of premium natural and organic foods supermarkets in which the merger created a dominant firm, even though it would have been inconsequential in a broader market that included all supermarkets; see the opinion on remand, in which the district court concluded that the dispute turns almost entirely on market definition. *F.T.C. v. Whole Foods Market, Inc.*, 592 F.Supp.2d 107 (D.D.C. 2009)). The case finally

will not reposition themselves to take advantage of the price increase. For example, in the above illustration if after the BC merger the owner of A either moved or built a second stand wedged between B and C, the price increase consequences of the BC merger would be lost.¹⁴

The closer the products made by the two merging firms, the more likely that the merger will produce a substantial price increase.¹⁵ However, they need not be the "closest" rivals before the merger can have sufficiently anticompetitive consequences. In *Whole Foods* the FTC and later the D.C. Circuit distinguished between "marginal" customers, who would shop the lowest price, and "core" customers who would be loyal to high end natural food stores even after a price increase.¹⁶ Whether the latter group was significant enough to make a price increase profitable presented an empirical question.¹⁷ Further, something must prevent other firms in the market from repositioning their output to make it more like that of the merging firms, thus enabling them to take advantage of the price increase. In making this assessment the agencies may use a methodology called "critical loss analysis," which begins with a price increase of a given magnitude, and then consider how many sales must be lost before this particular price increase would become unprofitable.¹⁸ Then it considers whether the actual level of sales lost in response to a given price increase exceeds the critical level.¹⁹ If the actual level is greater than the critical level, then the price increase is unprofitable and the market must be drawn more broadly. In some cases a large price increase might be profitable while a smaller one would not be; in others a small increase might be profitable while a larger one would not be.²⁰ In most cases the merger

settled on March 6, 2009, by an agreement which required some divestment of individual stores to one or more FTC-approved buyers, as well as of the "Wild Oats" brand.

¹⁴ See, e.g., *United States v. Oracle Corp.*, 331 F.Supp.2d 1098, 1117 (N.D.Cal. 2004) ("... repositioning by the non-merging firms must be unlikely. In other words, a plaintiff must demonstrate that the non-merging firms are unlikely to introduce products sufficiently similar to the products controlled by the merging firms to eliminate any significant market power created by the merger."); *State of New York v. Kraft General Foods, Inc.*, 926 F.Supp. 321, 352–358 (S.D.N.Y. 1995) (refusing to condemn merger of ready-to-eat breakfast cereal makers on this theory, because one could easily expand its product variety into another's niche); accord *United States v. Gillette Co.*, 828 F.Supp. 78, 84 (D.D.C. 1993). See 4 Antitrust Law ¶ 914d (3d ed. 2009).

¹⁵ 2010 Horizontal Merger Guidelines, §6.1, available at

<http://www.justice.gov/atr/public/guidelines/hmg-2010.html>.

¹⁶ *FTC v. Whole Foods Markets, Inc.*, 548 F.3d 1028 (D.C. Cir. 2008).

¹⁷ See Carlton Varner & Heather Cooper, Product Markets in Merger Cases: The *Whole Foods* Decision, Antitrust Source (Oct. 2007), available at <http://www.abanet.org/antitrust/at-source/07/10/Oct07-Varner.pdf>; and Joseph Farrell and Carl Shapiro, Improving Critical Loss Analysis, Antitrust Source (Feb. 2008), available at <http://faculty.haas.berkeley.edu/shapiro/critical2008.pdf>. See also Kevin Murphy and Robert Topel, Critical Loss Analysis in the *Whole Foods* Case, Global Competition Policy (March 17, 2008).

¹⁸ See 4 Antitrust Law ¶914a (3d ed. 2009); Carl Shapiro, The 2010 horizontal Merger Guidelines: from Hedgehog to Fox in Forty Years, 77 Antitrust L.J. #1 (2010).

¹⁹ See *City of New York v. Group Health, Inc.*, 2008 WL 4974578 (S.D.N.Y. Nov. 21, 2008) (critical loss analysis relevant to determination of amount of price increase that would likely occur subsequent to a merger); *Delco LLC v. Giant of Maryland, LLC*, 2007 WL 3307018 (D.N.J. Nov. 8, 2008) (similar).

²⁰ See Gregory Werden, Market Delineation and the Justice Department's Merger Guidelines, 1983 Duke

in question has not occurred, so the merger must be “simulated,” with the relevant losses estimated from demand elasticities.

As figure 3 illustrates, suppose that a market has six firms, A through F, making a differentiated product. The firms' products are differentiated, but by different amounts, as indicated by the distances between them. A's marginal cost is \$1.00, its current price is \$2.00, and at that price it sells 100 units. Its residual price elasticity of demand is -2 , which means that a 10% price increase, to \$2.20, will yield a 20% demand reduction, to 80 units.²¹ Note that this price increase is unprofitable. Pre-increase profits were \$100. But post-increase profits are \$1.20 per unit, times 80 units, or \$96.

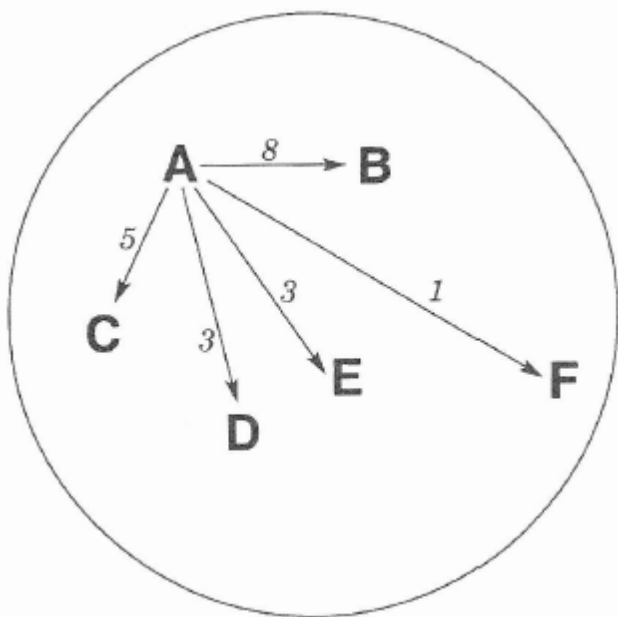


Figure 3

But when firm A raises its price, where do the customers go? Let us assume that of the 20 units that are lost, 8 (40%) go to B, the closest rival, 5 (25%) go to C, the second closest rival, and 3, 3 and 1 units respectively go to rivals D, E & F. This percentage rate at which customers

L.J. 514 (1983). Cf., e.g., *California v. Sutter Health Sys.*, 130 F.Supp.2d 1109, 1129 (C.D.Cal. 2001) (erroneously concluding that the only relevant price increase to be considered was the 5 percent increase suggested in the Guidelines; this could lead to the perverse result that a merger would be exonerated because the post-merger firm's 5% price increase would be unprofitable, even though a 10% price increase would be profitable). On the latter point, see Gregory J. Werden, *Beyond Critical Loss: Tailoring Applications of the Hypothetical Monopolist Paradigm*, 4 *Competition L.J.* 69 (2005); Malcolm B. Coate & Jeffrey H. Fischer, *A Practical Guide to the Hypothetical Monopolist Test for Market Definition*, 4 *J.Comp. L. & Econ.* 1031 (2008).

²¹ A "residual" elasticity of demand is the elasticity facing a single firm rather than the market as a whole. See Hovenkamp, *Federal Antitrust Policy*, § 3.9a.

substitute from A to B, or from A to C, is called a "diversion ratio."²² Assume also that all rivals have the same costs.

In this case an A–C merger would make the price increase profitable. While the price increase to \$2.20 reduces A's own profits by \$4.00, it increases C's profits by \$5.00 (that is, C sells 5 more at a profit of \$1.00 each). A merger with B would be even more profitable, since 8 sales, and \$8.00 in increased profit, go to B. But the important point is that a merger with *either* B or C would make A's 10% price increase profitable, even though C is only the second closest rival. Thus either merger would be challengeable if we regarded a merger facilitating a 10% price increase as unlawful.²³

Measuring diversion ratios empirically can be a fairly manageable problem, particularly in markets where there are electronic records of transactions. For example, if a sporting goods store sells several brands of running shoes and the price of Adidas rises by 10%, scanner data might reveal the number of customers who switched away from Adidas, and the relative numbers that switched to Nike, Saucony, Asics, and so on.²⁴

²² See Carl Shapiro, *The 2010 horizontal Merger Guidelines: from Hedgehog to Fox in Forty Years*, 77 *Antitrust L.J.* #1 (2010); David Scheffman and Joseph Simons, *Unilateral Effects for Differentiated Products: Theory, Assumptions and Research*, *Antitrust Source* (April 2010); Gregory Werden, *Unilateral Effects with Differentiated Products: A Response to Scheffman and Simons*, *Antitrust Source* (June, 2010). On similar analysis under previous Guidelines, see Jonathan B. Baker, *Contemporary Empirical Merger Analysis*, 5 *Geo. Mason L. Rev.* 347 (1997); Jonathan B. Baker, *Unilateral Competitive Effects Theories in Merger Analysis*, 11 *Antitrust* 21 (Spring 1997); Carl Shapiro, *Mergers with Differentiated Products*, 10 *Antitrust* 23, 24 (Spring, 1996); see also Christopher A. Velturo, *Evaluating Mergers with Differentiated Products*, 11 *Antitrust* 16 (Spring, 1997).

²³ See, e.g., *United States v. Interstate Bakeries Corp.*, 1996–1 Trade Cas. ¶ 71271 at 76190, 1995 WL 803559 (N.D.Ill. 1995) (approving consent decree):

The Complaint alleges that Interstate's acquisition of Continental would likely lead to an increase in price charged to consumers for white pan bread. Following the acquisition, Interstate likely would unilaterally raise the price of its own brands.... Because Interstate and Continental's brands are perceived by consumers as close substitutes, Interstate could pursue such a pricing strategy without losing so much in sales to competing white pan bread brands or to private labels that the price increase would be unprofitable. Interstate could, for instance, profitably impose a significant increase in the price of Wonder white pan bread, since a substantial portion of any sales lost for that product would be recaptured by increased sales of Interstate's other brands.

Id. at 76190. Accord *United States v. Kimberly–Clark Corp.*, 1996–1 Trade Cas. ¶ 71405, 1996 WL 351145 (N.D.Tex. 1996).

²⁴ See 4 *Antitrust Law* ¶ 914e (3d ed. 2009); and see Gregory H. Werden & Luke Froeb, *Unilateral Competitive Effects of Horizontal Mergers*, in *Handbook of Antitrust Economics* (Paolo Buccirossi, ed., 2008); Oliver Budzinski and Isabel Ruhmer, *Merger Simulation in Competition Policy: A Survey*, 61 *Comp. L. & Econ.* 277 (2009). See also Jonathan Baker & Timothy Bresnahan, *The Gains from Merger or Collusion in Product–Differentiated Industries*, 33 *J. Indus. Econ.* 427 (1985); Gregory Werden,

Unilateral effects theories received a very enthusiastic reception at the enforcement agencies in the 1990's, although now it is beginning to wane. One difficulty in estimating unilateral effects is that retail pricing data can exaggerate the anticompetitive effects of mergers by focusing exclusively on the demand side of the market. Suppose Beech–Nut and Gerber are relatively close substitutes making "premium" baby food and decide to merge. Scanner data indicates that these firms are close substitutes for each other but that Heinz, which makes a lower price brand, is more removed. As a result the data suggest that a price increase will result from the Beech–Nut and Gerber merger.

But the scanner data tells us only what customers' immediate responses are to price variations among the three brands. The data say nothing about whether Heinz would be in a position to modify its product so as to compete in the premium market niche itself. Nor do they say anything about grocers' ability to respond to a price increase in premium baby food by re-allocating more shelf space to lower priced brands. Excessive reliance on short-run consumer behavior gives us an exaggerated picture to the extent that consumer choice is only one of many avenues along which substitution among products occurs. In large part, this emphasis results from the fact that the retail scanner has placed an enormous amount of data in the statistician's hands. Both the quality and the quantity of the data are beguiling. But one should not forget that these data create only an incomplete picture of the degree of substitutability among differentiated products.²⁵

Before consumer data tells us reliably that a merger among two makers of similar products is anticompetitive, we also need to collect information about other factors. These include mainly manufacturers' ability to re-configure their products in response to higher profits in one segment. Making higher quality baby food may require little more than selecting different ingredients, and perhaps some advertising announcing the quality change. On the other hand, for Ford to enter the market niche occupied by BMW and Mercedes may require years of planning and design. We also need to know something about the ability of retailers to re-design their sales efforts. The multi-brand retailer has its own profit incentives to push those products that sell the best and can be expected to disfavor product variations selling at monopoly prices.

A second problem with unilateral effects theory is that it postulates a single relevant market that under the Merger Guidelines must be well defined. This means that the goods in it must be reasonably good substitutes for each other. The unilateral effects theory then requires that the output of the two merging firms be particularly close, while the output of non-merging

Simulating Unilateral Competitive Effects from Differentiated Products Mergers, 11 *Antitrust* 27 (Spring, 1997); Jerry A. Hausman & Gregory K. Leonard, *Economic Analysis of Differentiated Products Mergers Using Real World Data*, 5 *Geo. Mason L. Rev.* 321 (1997).

However, in other markets diversion ratios may be much more difficult to measure. See, e.g., *Oracle*, note 14 at 1172 (critical of government case for failure to produce evidence concerning diversion ratio).

²⁵ See Edward J. Lopez, *New Anti–Merger Theories: A Critique*, 20 *Cato Journal* #3 (Winter, 2001).

firms be sufficiently distinct that they cannot discipline a higher price charged by the merging firms. For example, suppose that a market contains firms A, B, C, D, E & F, and that C and D merge. Why is it that firms A, B, E & F are unable to respond to the C–D price increase? If they cannot make such a response, then it seems reasonable to conclude that they were improperly included in this market to begin with. But if the market were really limited to firms C and D, then we have a simple merger to monopoly, which does not require any "unilateral effects" theory to analyze.²⁶

²⁶ See *Oracle*, note 14 at 1113–1118 (criticizing the unilateral effects theory on this ground).

IV. Estimating Anticompetitive Consequences II: Mergers Facilitating Coordinated Interaction

The prevailing concern of merger law is to deter oligopolistic pricing or express collusion. Since many mergers have a significant but unmeasurable potential to create efficiencies,¹ an ideal antitrust policy would condemn mergers when the risk of oligopoly pricing or collusion is substantial and approve them when such risks are minimal.

Economists generally agree that there is a relationship between the size, size distribution and number of firms in a market and the likelihood of collusion. They disagree about the relevant numbers. Furthermore, markets differ from each other. One market containing six firms might be much more susceptible to collusion than another. Nevertheless, both the Merger Guidelines and the courts have tried to develop unitary structural rules for prima facie illegality that apply in all industries with a given level of concentration. Then they use several non-market share factors as mitigating or aggravating circumstances on a case-by-case basis. This approach was approved by the Supreme Court in *United States v. Philadelphia Nat. Bank*.² The non-market share factors include:

- 1) Presence and Height of Entry Barriers³
- 2) Sophistication of Buyers, Suppliers or Others in a Position to Discipline Market Participants⁴
- 3) Sales Methods, Shipping Costs, Availability of Facilitating Practices⁵
- 4) Degree of Product Differentiation⁶

Measuring Market Concentration: The CR4 and the Herfindahl

Under practically every theory about how mergers can facilitate anticompetitive behavior, market concentration is relevant. If the feared consequence is collusion, it can readily be shown that price fixing is more likely to be successful as the number of price fixers declines. Collusion is particularly more likely to succeed if the colluders can eliminate firms that have been unwilling to participate in the cartel. As the number of cartel members is reduced, the ease with which an agreement can be reached increases; further, cheating becomes a smaller problem and it

¹ See Herbert Hovenkamp, *Federal Antitrust Policy* § 12.2 (4th ed. 2011) (in press).

² 374 U.S. 321, 355–66, 83 S. Ct. 1715, 1737–43 (1963). The Court compared market share percentages in merger cases in a wide variety of industries and concluded that the percentages in the case before it (combined market share more than 30%) "raise an inference that the effect of the contemplated merger of appellees may be substantially to lessen competition * * *." *Id.* at 365, 83 S. Ct. at 1742.

³ See Hovenkamp, *Federal Antitrust Policy*, § 12.6.

⁴ *Id.*, § 12.7a.

⁵ *Id.*, § 12.7d.

⁶ *Id.*, § 12.5a.

can often be detected more easily. The ability to eliminate a fringe firm not participating in the cartel can often spell the difference between success and failure, particularly if there are only one or a small number of such firms.⁷

If the feared result is noncooperative oligopoly behavior of the Cournot variety,⁸ the inverse relationship between the number of firms and anticompetitive consequences is equally robust. In the orthodox Cournot oligopoly, output goes down and prices go up as the number of firms decreases. More complicated variants generally yield similar results. For example, the more easily one firm can observe the behavior of others, the more easily an oligopoly can be maintained. A small number of rivals is generally easier to observe than a large number, and "cheating" thus easier to detect.⁹

So concentration clearly matters. Nevertheless, the robustness of that conclusion belies much complexity about *how* it matters. The questions are manifold: (1) at what level does the number of firms in the market begin to make a measurable difference in performance? (2) what is the relevance of *variations* in firm size, whether in the market generally or among the merging partners? (3) what index, or measurement device, best captures the market concentration concerns of merger policy? (4) to what extent should differences among markets be taken into account? Although economists agree fairly broadly about the general relevance of concentration, they continue to dispute the answers to all four of these questions. One's position on them affects both the weight given to a particular level of concentration and the choice of a rule, or "index," for measuring concentration.

The Four-Firm Concentration Ratio (CR4)

In the 1960's and 1970's courts and the enforcement agencies most often looked at the "four-firm concentration ratio" (CR4) to determine the degree of danger present in a particular market. The CR4 is computed by summing the market shares of the four largest firms in the market. Thus a market in which the four largest firms have market shares of 30%, 20%, 15%, and 10% has a CR4 of 75%.¹⁰ Such a market was considered highly concentrated, and any merger in that market would be given close scrutiny. If the CR4 was much smaller, such as 25%, then a merger involving firms of somewhat larger market shares might still be legal. Under the original Merger Guidelines issued by the Division in 1968,¹¹ a merger of two firms of 4% market share each was presumptively illegal in a highly concentrated market (CR4 greater than 75%). If the market was less concentrated, mergers involving firms of 5% each were presumptively illegal. These Guidelines were substantially more tolerant of mergers than Supreme Court case law, which had condemned mergers in unconcentrated markets of firms whose combined post-merger

⁷ For analysis of these factors, see Hovenkamp, *Federal Antitrust Policy*, § 4.1.

⁸ *Id.*, § 4.2.

⁹ See 4 *Antitrust Law* ¶ 930 (3d ed. 2009).

¹⁰ Some economists prefer the 8-firm concentration ratio (CR8), which is the sum of the market shares of the eight largest firms. Courts, however, have used the CR4 almost exclusively.

¹¹ U.S. Dep't of Justice Merger Guidelines, reprinted in 4 *Trade Reg. Rep. (CCH)* ¶ 13,101 (1968).

market share was less than 8%.¹²

Conceptually, the CR4 is based on the premise that the four largest firms in the market would collude, while the rest of the market remains competitive.¹³ If the four firms made up all, or nearly all, of the market their cartel price would be close to the monopoly price. By contrast, if the four largest firms had only a small market share they could not succeed in getting the price significantly above the competitive level.¹⁴

Ever since the CR4 was introduced into merger litigation, there has been widespread dispute about how it should be applied. The issues concerned how concentrated a market must be before close scrutiny of mergers is appropriate, and how large the parties must be before the danger to competition is substantial. At one extreme are Supreme Court cases condemning mergers of small firms in unconcentrated markets. At the other extreme are suggestions that mergers are not likely to be harmful unless the share of the post-merger firm is 60% or so.¹⁵ In the middle a rather vague consensus emerged that a market in which the CR4 exceeds 75% is conducive to collusion, and that a market in which the CR4 is less than 40% or so is a "safe harbor" in which most mergers should be legal. There was also general agreement that if the CR4 were 75% or higher, a merger in which the combined market share of the post-merger firm exceeded 12% should be illegal. These figures are admittedly generalizations from a variety of writers whose opinions vary across a wide range.¹⁶ Courts gravitated toward the same numbers, although there is no unanimity among the judges either.¹⁷

The Herfindahl–Hirschman Index (HHI)

The enforcement agencies now use the Herfindahl–Hirschman Index (HHI) instead of the CR4 to measure market concentration.¹⁸ The HHI as used in the Horizontal Merger Guidelines is the sum of the squares of every firm in the relevant market. For example, if a market has 3 firms each with a market share of 25%, 1 firm of 15% and 1 firm of 10%, the HHI would be $25^2 + 25^2 + 25^2 + 15^2 + 10^2$ <EQUAL> 2200. Such a market (which has a CR4 of 90%) is considered

¹² E.g., *United States v. Von's Grocery Co.*, 384 U.S. 270, 86 S. Ct. 1478 (1966) (condemning merger where combined market share of merging firms was 7.5% and CR4 was 24.4%); *United States v. Pabst Brewing Co.*, 384 U.S. 546, 86 S. Ct. 1665 (1966), on remand, 296 F.Supp. 994 (E.D.Wis. 1969) (condemning merger where firms' combined market share was 4.5% and CR4 less than 30%).

¹³ See Thomas R. Saving, *Concentration Ratios and the Degree of Monopoly*, 11 *Int'l. Econ. Rev.* 139 (1970); Roger D. Blair & David Kaserman, *Antitrust Economics* 236 (1985).

¹⁴ See 4 *Antitrust Law* ¶ 931a1 (3d ed. 2009).

¹⁵ See Robert H. Bork, *The Antitrust Paradox: A Policy at War With Itself* 221 (1978; rev. ed. 1993).

¹⁶ See George J. Stigler, *The Organization of Industry* 58–59 (1983 ed.); for a generally agnostic conclusion, see Frederic M. Scherer & David Ross, *Industrial Market Structure and Economic Performance* 184 (3d ed. 1990).

¹⁷ For a table of cases, indicating the market shares of the company, the market structure, and the decision, see the Appendix immediately following Chapter 9, 4A *Antitrust Law* (3d ed. 2009).

¹⁸ For the history and early use of the Index, see Albert O. Hirschman, *The Paternity of an Index*, 54 *Amer.Econ.Rev.* 761 (1964); George J. Stigler, *A Theory of Oligopoly*, 72 *J.Pol.Econ.* 44 (1964).

moderately concentrated under the 2010 Horizontal Merger Guidelines, which set the threshold for “high” concentration at 2500. The same market was considered highly concentrated under the 1992 Guidelines, which so regarded any market with an HHI greater than 1800.

Many economists believe that the HHI describes market structure and dangers of anticompetitive activity more accurately than the CR4 does. For example, the CR4 fails to account for distribution of market shares among the four largest firms. A market in which the four largest firms each have a 20% share has a CR4 of 80%. A market in which the largest firm has 77% and firms 2, 3 and 4 each have 1% also has a CR4 of 80%. This is so because the price charged by a classical cartel is indifferent to the distribution of firm sizes. The cartel of four 20% firms will fix the same price as the cartel of one 77% firm and three 1% firms.

But in a non-cooperative oligopoly¹⁹ the price rises as the disparity in firm size rises, and the HHI reflects this.²⁰ Our experience also bears this out to some degree. A market with four equal size, equally efficient firms may behave quite competitively. An industry with one giant and several pygmies, however, will likely be conducive to “price leadership,” a form of oligopolistic pricing in which the largest firm sets a supracompetitive price and the smaller firms, fearful of retaliation, follow with their own supracompetitive price. The HHI acknowledges that markets with the same CR4 may exhibit widely different degrees of competition. The HHI of the market containing four 20% firms will be around 1700 or 1800, depending on the size of the remaining firms. In the case of the market containing one 77% firm and three 1% firms, the HHI will be around 6000.²¹

The question of variations in firm size is important, but it does not yield answers that are consistent, as the two concentration indices suggest. If the feared threat is price fixing and the industry is subject to scale economies, variations in firm size can make cartel bargains more difficult to reach and enforce. There will be more disagreements about the profit-maximizing price, because firms with different costs compute different profit-maximizing prices. There may

¹⁹ On non-cooperative, Cournot-style oligopoly, see Hovenkamp, *Federal Antitrust Policy*, § 4.2.

²⁰ The HHI is derived from pure Cournot theory. See 4 *Antitrust Law* ¶ 931d (3d ed. 2009); and George J. Stigler, *A Theory of Oligopoly*, 72 *J.Pol.Econ.* 44 (1944). For a simple formulation, see W. Kip Viscusi, John M. Vernon & Joseph E. Harrington, *Economics of Regulation and Antitrust* 148–149 (4th ed. 2005).

²¹ There has been a healthy debate among economists over the relationship between the level of concentration and the size distribution of the firms in facilitating anticompetitive behavior. Earlier empirical studies suggested a positive correlation between the level of concentration in an industry and the amount of monopoly profits. For example, Joe S. Bain, *Relation of Profit Rate to Industry Concentration: American Manufacturing, 1936–1940*, 65 *Q.J.Econ.* 293 (1951). However, later economists argued that by using the CR8 as his index of concentration, Bain ignored the fact that asymmetry of firm size within the market may have much more influence than concentration itself on the amount of monopoly pricing. See John E. Kwoka, *Large–Firm Dominance and Price/Cost Margins in Manufacturing Industries*, 44 *S.Econ.J.* 183 (1977). Other aspects of the debate are summarized in Paul Pautler, *A Review of the Economic Basis for Broad–Based Horizontal–Merger Policy*, 28 *Antitrust Bull.* 571 (1983).

also be less agreement about how the output reduction should be allocated.²² For example, the HHI seems to be superior to the CR4 in predicting that a market in which one firm has a 77% market share and three others have 1% each will perform less competitively than a market with four 20% firms. But the HHI also predicts that a market in which the top four firms have 25%, 20%, 20%, and 15% will perform less competitively than the market with four 20% firms. The HHI in the former will be upwards of 1650, while that of the latter will be somewhere above 1600. Any amount of variation in firm size increases the HHI; that is, for any given number of firms, HHI is minimized when all firms are exactly the same size.²³ This prediction is not consistent with the notion that express collusion (or cooperative oligopoly behavior) is most likely to succeed when all the firms are approximately the same size.

If our underlying merger concern is single firm dominance, we would be more suspicious of firms that create or enlarge dominant firms than of mergers that simply make a nondominant firm larger, perhaps decreasing the absolute variation in firm size. For example, if a market contained A<EQUAL>60%, B<EQUAL>20% and C<EQUAL>20%, and B acquired C, the market would be more concentrated in terms of number of firms, but resulting variation in firm size would be less. This particular merger would increase the Cournot equilibrium price, and make collusion easier to manage, but it might reduce the threat of single firm exclusionary practices. Further, if post-merger firm BC was in a better position to be aggressive, the merger might actually increase competition. In sum, the predictive power of either the HHI or the CR4 depends on many assumptions about relative size and behavior, and the assumptions will not obtain across all markets or apply to all firms.

Because the CR4 is derived from a cartel theory, it underestimates the importance of disparities in firm size. By contrast, since the HHI is mathematically derived from a pure Cournot theory, it exaggerates the influence of such disparities. Further, in a Cournot oligopoly the size distribution of firms becomes a function of their marginal costs (firms with higher marginal costs have smaller market shares), and price/cost ratios rise as the disparity in firm size rises.

Is the HHI correct to assume that disparities in firm size yield higher rather than lower market prices in oligopoly markets? That question, it turns out, is extremely complicated and no one knows the answer for sure. Several models of oligopoly pricing actually predict lower prices in a market dominated by a single firm than in an "equivalent" market with the same total number of equal sized firms.²⁴ In that case the HHI is incorrect to regard disparities in firm size as an aggravating factor. But these models also generally assume that the dominant firm has

²² The problems are discussed in Hovenkamp, Federal Antitrust Policy, § 4.1.

²³ This is simply generalized. Suppose a market has n firms with market shares of A each. The HHI will be nA^2 . Suppose now that one firm is larger by B , which entails that another firm or group of firms will be smaller by B , since the total must be 100%. Assume that the first firm's market share goes to $(A+B)$ and that the second firm's is now $(A - B)$. When both of these firms were size A , their joint contribution to the HHI was $2A^2$. But now their contribution is $(A + B)^2 + (A - B)^2$, which equals $A^2 + 2AB + B^2 + A^2 - 2AB + B^2$, which is the same as $2A^2 + 2B^2$. So the HHI has increased by $2B^2$.

²⁴ See Scherer & Ross, note 16 at 225–226.

lower costs than its rivals, and this may not always be the case. Further, dominant firms in markets can facilitate price "leadership," which can be quite different from Cournot oligopoly. In the latter, each firm sets its own profit-maximizing output on the assumption that other firms will not change their behavior. Under price leadership, however, the dominant firm commonly sets the price under the assumption that the followers will match its price, because they fear retaliation. In that case, the price leadership model yields prices and output that approximate the cooperative, or *cartel*, level rather than the lower Cournot oligopoly level. Likewise, if oligopolies are thought of as repeated games, pricing and output approaching the cartel level may emerge.²⁵

All of this underscores that our choice of an index is not only a question of mathematics, but also of the behavioral assumptions we make. One index may in fact be better for some measurement situations, while the other index is better for others.²⁶ We might use the CR4 to measure concentration in markets where we think the real threat to competition will come from express collusion or cooperative, tacit collusion. But we might want to use the HHI for markets where the perceived threat is Cournot style noncooperative oligopoly behavior.

But as a practical matter such a suggestion is unrealistic. In most industries, predicting the type of behavior that is most likely to occur would involve a great deal of guesswork. Presumably, firms acting in the abstract would prefer cooperative behavior, since it is more profitable.²⁷ However, their fallback position would be Cournot; so Cournot would express our minimum concern, and the relevant question would be, how successful would the firms be in keeping their prices *above* the Cournot level.

In addition, although the *theoretical* underpinning of CR4 and Cournot are fairly clear, the available empirical evidence is mixed: empirically it has not been shown that the CR4 consistently works better in one type of industry, while the HHI consistently works better in another type.²⁸

²⁵ See Hovenkamp, Federal Antitrust Policy, § 4.2.

²⁶ See Marie-Paule Donsimoni, Paul Geroski & Alexis Jacquemin, Concentration Indices and Market Power: two Views, 32 J. Indus. Econ. 419, 428 (1984): "[T]here is no such thing as an 'optimal' index of concentration, both because different industries behave differently as well as because no obvious widely accepted normative judgments exist to guarantee its optimality."

²⁷ That is, perfectly cooperative behavior (for example a cartel where the profit-maximizing price is set accurately and no one cheats) yields the single-firm monopoly price. By contrast, Cournot behavior with two or more firms yields a price somewhat less than the single-firm monopoly price, which decreases as the number of firms increases.

²⁸ Some empirical studies suggest that likelihood and success of collusion in a market varies with HHI. Howard P. Marvel, Competition and Price Levels in the Retail Gasoline Market, 60 Rev.Econ.Statistics 252 (1978). Others have found that the HHI generally predicts such behavior better than the CR4. Keith Cowling & Michael Waterson, Price–Cost Margins and Market Structure, 43 *Economica* 267 (1976). However, other studies suggest that the HHI is no more reliable than the CR4. Compare Neil B. Cohen & Charles A. Sullivan, The Herfindahl–Hirschman Index and the New Antitrust Merger Guidelines: Concentrating on Concentration, 62 *Texas L.Rev.* 453, 490 (1983) (HHI generally no better); John E.

Ultimately—and importantly—the choice of an index probably does not make all that much difference except in a very few cases. Although the *technical* variations among various indexes are significant, in practice the differences are usually not all that large.²⁹ Indeed, some studies have found extraordinarily high correlations between the HHI and the CR4 across most American industries, although the variation tends to be greater in markets with higher concentration levels, where merger policy becomes more relevant.³⁰ Some studies have suggested that we could get along with much simpler structural measures—for example, that the minimum condition for competition in most industries is three or four competitors of approximately equal market position, if the concern is oligopoly, or perhaps a half dozen if the concern is price fixing.³¹ If that is the case, then much of the precise-appearing arithmetic of the HHI may be a waste of time.³²

The conclusion that index choice is really not all that important is particularly relevant because a great deal of approximation and guesstimate goes into merger policy to begin with. Most importantly, the "relevant markets" that merger enforcers analyze are only approximations, and the numbers we use to measure market share within these markets carry the degree of approximation even further, especially if the products of market participants are differentiated. For example, we must make fairly absolute decisions, often based on availability of data, whether to use units of output, revenue or plant capacity in calculating market shares.³³ Unless price is uniform and the product perfectly fungible, each of these methodologies provides distorted conclusions.

The relevant question then becomes whether it is worth the trouble to make the additional inquiry whether HHI or CR4 is the appropriate index for a particular industry. As a general matter, it is not. Perhaps we would wish to make an occasional exception. For example, perhaps we might use the HHI as a general matter but revert to the CR4 in those markets where there has

Kwoka, The effect of Market Share Distribution on Industry Performance, 61 Rev. Econ. & Statistics 101 (1979) (HHI inferior); John E. Kwoka, The Herfindahl Index in Theory and Practice, 30 Antitrust Bull 915 (1985) (same). Jon Baker more recently concluded that "empirical literature does not provide a strong basis for choosing any particular measure of market concentration, though it is not inconsistent with the common modern antitrust practice of using the HHI to represent concentration." Jonathan B. Baker, Market Concentration in the Antitrust Analysis of Horizontal Mergers, in Antitrust Law & Economics (Keith Hylton, ed., 2009).

²⁹ It is logically possible for differences to be large. For example, an HHI of 1800 can describe markets in which the CR4 is as little as 44.73 to as much as 84.48. See David S. Weinstock, Some Little-Known Properties of the Herfindahl-Hirschman Index: Problems of Translation and Specification, 29 Antitrust Bull. 705, 707 (1984).

³⁰ See Leo E. Sleuwaegen and Wim V. Dehandschutter, The Critical Choice Between the Concentration Ratio and the H-index in Assessing Industry Performance, 35 J.Indus.Econ. 193 (1986); John E. Kwoka, Does the Choice of Concentration Measure Really Matter?, 29 J.Indus.Econ. 445 (1981).

³¹ See Kwoka, Id.

³² See Herbert Hovenkamp, The Antitrust Enterprise: Principle and Execution, ch. 9 (2005).

³³ See Hovenkamp, Federal Antitrust Policy, § 3.7b.

been a history of attempts at collusion, and the attempts seem to have been at least modestly successful. The previous discussion noted that the CR4 is indifferent to the size distribution among the largest four firms, while the HHI places great emphasis on size distribution. Express collusion may be easier to manage in those industries where the size of the colluding firms is more or less the same. As a result, the HHI may tend to be somewhat underdeterrent in an industry where the top four firms have roughly identical market shares of, say, 15%–20%, particularly if those four firms have been moderately successful in managing collusion in the past. In such an industry, it would be a good idea to add some additional factor to our inquiry to take the history of collusion into account. It is far from clear, however, that this additional inquiry requires resort to a specific alternative concentration index such as the CR4. We might just as plausibly say that any merger involving two significant firms in an industry where there has been a history of collusion should be illegal, and forget about the concentration index.³⁴

The HHI also provides more information than the CR4 concerning size disparities *between* the merging firms. If two firms with 20% market shares merge, the result will be a firm with a 40% market share. The same result will obtain from a merger of a 38% firm with a 2% firm. As a general matter, the first merger will have a more serious impact on competition than the second. The first one may double the size of the dominant (or second largest) firm in the market. The second merger will merely make a large firm marginally larger. The CR4 accounts for the result only haphazardly, depending on whether one or both of the merging firms are among the four largest in the industry. The HHI accounts for the difference rather precisely: the first merger increases the market's HHI by 800 points, while the second increases the HHI by only 152 points.³⁵

Once again, however, individualized questions about management strategy or specific firm history may provide us with more information than either of the indexes. In the above example the 2% firm acquired by the 38% firm may have been a new, aggressive firm bent on cutting price and becoming larger, and with some promise of doing so. In that case, its acquisition by the largest firm could be quite anticompetitive, to the extent it eliminates a potentially troublesome rival. Both the 1992 and 2010 Horizontal Merger Guidelines acknowledge this issue by paying special attention to the acquisition of "maverick" firms.³⁶

The HHI is also used to establish "safe harbors"—relatively unconcentrated industries in

³⁴ See 4 Antitrust Law ¶¶ 917, 944b (3d ed. 2009).

³⁵ To calculate the *increase* in HHI produced by a merger, take the product of the market shares of the merging firms (as whole numbers) and multiply by two. Thus a merger of a 20% firm with a 15% firm produces an HHI increase of 600. Do you see why this is so? Before the merger the two firms represented 20^2 plus 15^2 HHI points. After the merger, however, they represent $(20 + 15)^2$ HHI points. The square of a binomial $(A + B)^2$ equals $A^2 + 2AB + B^2$. The $2AB$ represents the increase.

³⁶ See 2010 Horizontal Merger Guidelines at §2.1.5; 1992 Guidelines, § 2.12 (footnotes omitted). On the maverick firm, mainly under the 1992 Guidelines, see David Scheffman, Malcolm Coate, Louis Silvia, *Twenty Years of Merger Guidelines Enforcement at the FTC: An Economic Perspective*, 71 *Antitrust L.J.* 277 (2003); Jonathan B. Baker, *Mavericks, Mergers, and Exclusion: Proving Coordinated Competitive Effects Under the Antitrust Laws*, 77 *N.Y.U.L. Rev.* 135 (2002).

which mergers will not ordinarily be challenged. By accounting for all firms in the market (rather than the top four, as the CR4 does) the HHI can give a measure of total market concentration that indicates to the policy maker whether mergers are likely to be a problem in a particular industry.³⁷ The 2010 Guidelines indicate that mergers that result in an HHI of less than 1500 are “unlikely” to have anticompetitive effects and ordinarily will not be pursued.³⁸

In some respects, the HHI is more difficult to use than the CR4. The latter required measurement of only the four largest firms in the market. The HHI theoretically requires measurement of every firm in the market. The other side of the coin, of course, is that the HHI claims to be a more reliable indicator of overall market concentration *because* it measures every firm. Furthermore, the error that results from miscalculation is very small with respect to the smaller firms in the market. A 5% firm, for example, adds only 25 HHI points, and a 1% firm adds only 1 point. Since the relevant threshold concentration under the HHI is around 1000, an error in the measurement of a small firm makes little difference. For most purposes fringe firms with a market share of 2% or less may safely be ignored.

A more significant problem with the HHI is that an error in measuring the market share of a large firm will distort the measurement substantially. For example, assume that a market contains four firms with market shares of 35%, 15%, 10% and 10%. The CR4 is 70% and the HHI will be around 1700, depending on the size of the other firms in the market. Suppose, however, that the size of the largest firm is erroneously measured as 40%. In that case the four-firm concentration ratio goes to 75%—not a dramatic difference. The HHI, however, jumps to about 2100, and that difference is quite substantial. In fact, a 5 point error in the measurement of the largest firm has about the same impact on the HHI as a 5% error in the measurement of all three of the other firms in the CR4. For this reason precise and careful market definition and share computation is essential to a court relying on the HHI, especially with respect to the largest firms in a fairly concentrated market.

Apropos of the last point, no matter which concentration index one chooses, the conclusions the index produces must be discounted when there is doubt about the quality of the underlying data, or when the market is too “thin” to produce very reliable information. For example, very small markets characterized by large, rather idiosyncratic sales do not provide very reliable numbers—indeed, the numbers may vary widely from one year to the next as firms bid, produce at capacity, and re-enter the market with further bids.³⁹ However, the point can be pushed too far. Markets with high fixed costs and lumpy sales—say, a small number of sales, where each sale is unusually large—can be particularly susceptible to collusion. Cheating is easy to detect as the number of sales that needs to be monitored decreases. So the point is *not* that one should be more tolerant of mergers in such markets; rather, not as much predictive power can be

³⁷ See Richard A. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, 21 *Stan.L.Rev.* 1562, 1602–1603 (1969); Stephen Calkins, *The New Merger Guidelines and the Herfindahl–Hirschman Index*, 71 *Cal.L.Rev.* 402, 419 (1983).

³⁸ 2010 Horizontal Merger Guidelines, § 5.3.

³⁹ Noting this is *United States v. Baker Hughes Inc.*, 908 F.2d 981 (D.C.Cir. 1990).

expected from an index such as the HHI.

***Market Share Thresholds Under the Horizontal Merger Guidelines;
Actual Government Practice***

The 2010 Guidelines for horizontal mergers rely heavily on industrial organization theory to establish some prima facie indicators of when the Division or the FTC will challenge a particular merger. In brief, the Guidelines regard any market in which the *post*-merger HHI is below 1500 as "unconcentrated." Such a market has the equivalent of seven or eight roughly equal sized firms. "Mergers resulting in unconcentrated markets are unlikely to have adverse competitive effects and ordinarily require no further analysis."⁴⁰

If the post-merger HHI falls between 1500 and 2500, the market will be deemed "moderately" concentrated. Nevertheless the agencies will be unlikely to challenge a merger that produces an HHI increase of less than 100 points. If the increase is greater than 100 points, however, the likelihood of challenge increases and such mergers warrant further scrutiny.⁴¹

Markets where the post-merger HHI exceeds 2500 are regarded as highly concentrated. Even here, however, mergers producing an HHI increase of less than 100 points will not ordinarily be challenged. If the HHI increase falls between 100 and 200 points, then the merger will be regarded as having significant anticompetitive potential and will warrant close scrutiny. If the HHI increase exceeds 200 the merger "will be presumed to be likely to enhance market power," although this presumption can be rebutted by "persuasive evidence."⁴²

In a market with a post-merger HHI above 2500 a dominant firm likely would be prohibited from acquiring any but the smallest of competitors. For example, if a firm with a 30% market share acquired a firm with a 4% share, the increase in HHI would be 240. The Agencies would probably challenge the merger.

The 2010 Guidelines deviate from stricter standards in the 1992 Guidelines and earlier, which had identified any market with a post-merger HHI above 1800 as highly concentrated and were more aggressive about challenging fairly small acquisition. However, the enforcement data indicate that particularly during the first decade of the 21st century the Guidelines were not followed very closely. For example, except in the petroleum industry, the FTC rarely challenged a merger when the *post*-merger HHI fell below 2000, unless they involved the largest firms in the market. The agencies challenged very few mergers where the post-merger HHI fell below 2400, unless the merger increased the HHI by 300 points or more.⁴³ The 2010 revisions were an

⁴⁰ 2010 Horizontal Merger Guidelines, § 5.3, available at <http://www.justice.gov/atr/public/guidelines/hmg-2010.html>. For further elaboration, see 4 Antitrust Law ¶ 932 (3d ed. 2009).

⁴¹ 2010 Horizontal Merger Guidelines, § 5.3.

⁴² 2010 Horizontal Merger Guidelines, § 5.3.

⁴³ See FTC, Merger Challenges Data, Fiscal Years 1999–2003, available at www.ftc.gov. One decision cited this data and then refused to condemn a merger that was on the margin of illegality according to the

attempt to make the Guidelines a better predictor of actual agency practice.

The Weight to be given to Market Definition and Market Share Measures

Both concentration measures and estimates of market share are generalized attempts to predict the likelihood of anticompetitive behavior in a market. Often, however, information gleaned from the specific market at issue suggests that the concentration measures overstate or understate the competitive significance of a particular merger. This is particularly likely to occur when market conditions are in a state of flux, or when the concentration numbers either overstate or understate the degree of difference between products that are inside the market and those that are outside.

Changing market conditions generally refers to a recent change that is almost certain to have an impact on the market in the future, but which is not yet accounted for in concentration/market share data, which are necessarily historical. For example, if a firm has been losing ground consistently, its patents are about to expire, or its essential mineral reserves are about to be exhausted, then the company's current sales or market share may seriously overstate its competitive capacity for the future. This was the central message of the Supreme Court's *General Dynamics* decision.⁴⁴ The government produced evidence that the coal mining companies involved in the merger had combined market shares of 23.2% in Illinois or 12.4% in a larger eastern region of the country, and that the CR4 was 75% in the first area and about 63% in the second. The Court acknowledged that "in the absence of other considerations" these numbers would have justified condemning the merger. In this case, however, General Dynamics owned few coal reserves that were not already committed to buyers under long term contracts, and its uncommitted reserves were being depleted rapidly.⁴⁵ Further, although the acquired firm produced 4.4% of the market's coal, it owned only 1% of the market's coal reserves, and the latter number seemed to be a more accurate reflection of the firm's future competitive position. Further, there was "no possibility" that the firm could acquire more reserves. The Court approved the merger.

Guidelines, but whose numbers were significantly lower than previous mergers that the government had challenged. *FTC v. Arch Coal, Inc.*, 329 F.Supp.2d 109, 129 (D.D.C. 2004), case dismissed, 2004 WL 2066879 (D.C.Cir. 2004). In public hearings prior to the adoption of the 2010 Guidelines it became quite clear that Agency practice had deviated significantly from the standards that the 1992 Guidelines had articulated. See Carl Shapiro, *The 2010 horizontal Merger Guidelines: from Hedgehog to Fox in Forty Years*, 77 *Antitrust L.J.* #1 (2010).

⁴⁴ *United States v. General Dynamics Corp.*, 415 U.S. 486, 94 S. Ct. 1186 (1974). See 4A *Antitrust Law* ¶ 962 (3d ed. 2009).

⁴⁵ *General Dynamics*, 415 U.S. at 508, 94 S. Ct. at 1199, noting that virtually all proven reserves were depleted or already committed so the company's power to affect the price of coal was severely limited and diminishing. See also *Arch Coal*, note 43, 329 F.Supp.2d at 123–125 (current production rates exaggerated some firms' market presence where they had only a few years of reserves remaining at present production rates; refusing to condemn merger when post-merger HHI based on reserves was 2103 and HHI increase was 49).

In cases such as these the court must be fairly certain that the downturn is irreversible and not merely the consequence of poor management or temporary bad luck.⁴⁶ Further, the argument should not be considered as a "defense" to a clearly anticompetitive merger. Rather, it should be counted as an argument that current market share overstates the firm's competitive position. In some cases, adjusting for this may involve no more than reducing market share by the amount of the anticipated loss. For example, if a firm owns mines producing 100,000 tons, but one fourth of this capacity will become unproductive in the near future (say, two years), then the best alternative is simply to count the acquiring firm's output as 75,000 tons rather than 100,000 tons. In other cases estimation is more difficult. For example, a firm's current market share may be based on a patent that is about to expire. As soon as that happens, numerous firms will either enter the market or be able to enlarge their own output, but it may be hard to predict the rate or amount by which the defendant's market share will decline. If entry is very easy but for the patent, then the merger should probably be approved.

By the same token, market concentration/market share figures may not adequately account for the *degree* of difference between products inside or outside the market. If products defined as just outside the market are separated widely in product or geographical space from those defined as just inside, then those in the relevant market will have more power to raise price than if the separation is not so wide. To state it somewhat differently, cross-elasticities of demand or supply among various products do not exist on a continuum, but may be quite lumpy. Further, the lines that we characterize as "market definition" are fairly arbitrary in the sense that things just inside and things just outside *do* compete.

The evolution of the Horizontal Merger Guidelines suggests that the enforcement agencies are increasingly sensitive to the problem of excessive reliance on market definition mechanisms that are, at best, rough approximations of reality. This increases the relative weight that will be given to other factors. The 1992 Guidelines as well as earlier Guidelines emphasized technical analysis of market definition much more than the 2010 Guidelines. That is not to suggest that the Agencies will not employ technical methodologies. Indeed, the economic methodologies for delineating markets have become more technical and precise over time, thanks in large part to economists that have been working on merger analysis, whether independently or under the aegis of one of the Agencies.

Rather, the Guidelines suggest use of a broad array of tools, in which Market delineation plays a smaller role. Under the 2010 Guidelines market definition essentially plays two roles: "First, [it] helps specify the line of commerce and section of the country in which the competitive concern arises. . . . Second, [it] allows the Agencies to identify market participants and measure market shares and market concentration."⁴⁷ Thus, it can play a more informative and preliminary role than under the 1992 Guidelines, where it

⁴⁶ See *Olin Corp.*, 5 Trade Reg. Rep. ¶ 22,857 (FTC, 1990) (mere bad performance not sufficient to justify discounting of market share).

⁴⁷ 2010 Guidelines, §4.

often ended the analysis. More importantly, market definition (and the measuring of market shares and concentration) is no longer an end in itself, though it is “useful *to the extent* it illuminates the merger’s competitive effects.” Unlike the more formulaic mode of analysis generally contemplated by the 1992 Guidelines, the 2010 Guidelines’ analysis “need not start with market definition.”⁴⁸

The 2010 Guidelines also place a heavier emphasis on direct evidence of competitive effects in defining markets: “[e]vidence of competitive effects can inform market definition, just as market definition can be informative regarding competitive effects.”⁴⁹ The example offered concerns evidence that fewer firms offering a product causes price to rise significantly for that product—such evidence can *itself* establish a relevant product market.⁵⁰ The 2010 Guidelines also state that, in a merger situation involving “alternative and reasonably plausible candidate markets,” direct evidence of competitive effects is particularly valuable if the market shares resulting from the alternative markets yields disparate inferences regarding such effects.⁵¹

The 2010 Guidelines stress that market definition is an “inevitable simplification” in the sense that it imperfectly accounts for the fact that substitutes exist on a more-distant-to-closer spectrum. The 2010 Guidelines take the position that market shares of alternative products in markets that are defined *narrowly* are more likely to accurately measure their competitive significance. As a result, under the 2010 Guidelines, the Agencies proceed from the following understanding:

Although excluding more distant substitutes from the market inevitably understates their competitive significance to some degree, doing so often provides a more accurate indicator of the competitive effects of the merger than would the alternative of including them and overstating their competitive significance as proportional to their shares in an expanded market.⁵²

How Should Concentration Count? Philadelphia Bank

As the previous discussion suggests, predicting the competitive consequences of a merger is hardly an exact science. Several other factors must be taken into account, and each is susceptible to only “soft” measurement.

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ Compare the 2010 Guidelines with the 1992 Guidelines, §1.1 (“In considering the likely reaction of buyers to a price increase, the Agency *will take into account* all relevant evidence, including . . . evidence that buyers have shifted or have considered shifting purchases between products in response to . . . competitive variables.” (emphasis added)).

⁵¹ 2010 Guidelines, §4.

⁵² *Id.*

So does one simply throw them all into a pot and see what kind of stew comes out? In the *Philadelphia Bank* case, the Supreme Court concluded no.⁵³ Although numerous factors are relevant to predicting the consequences of a merger, market concentration must be considered more important than others. The Court acknowledged that a prediction of anticompetitive consequences

is sound only if it is based upon a firm understanding of the structure of the relevant market; yet the relevant economic data are both complex and elusive. * * * [U]nless businessmen can assess the legal consequences of a merger with some confidence, sound business planning is retarded. * * * So also, we must be alert to the danger of subverting congressional intent by permitting a too-broad economic investigation.

[W]e think that a merger which produces a firm controlling an undue percentage share of the relevant market, and results in a significant increase in the concentration of firms in that market, is so inherently likely to lessen competition substantially that it must be enjoined in the absence of evidence clearly showing that the merger is not likely to have such anticompetitive effects. * * *⁵⁴

This language, while not as clear as one might wish, suggests that once the government or other plaintiff has shown minimum concentration levels the merger should be enjoined *unless* there is evidence that the feared anticompetitive effects will not materialize. That means that the defendant has the burden of coming forward with such evidence. This is commonly called the *prima facie* evidence rule: the plaintiff makes a *prima facie* case of illegality by proving high concentration; the defendant then has the burden of rebutting by coming in with evidence unrelated to concentration as such.

Philadelphia Bank's *prima facie* evidence rule was based at least in part on the Court's conclusion that Congress was concerned about concentration for its own sake, not that Congress had decided that the best predictor of noncompetitive pricing was market concentration. This perspective is important, because it invites us to consider whether the *prima facie* rule is still correct even in a regime where we are inclined to think that economic competition, as measured by marginal cost pricing, ought to be the exclusive goal of merger policy, and that high concentration is bad only when it yields higher prices. While the D.C. Circuit's *Baker Hughes* decision suggested that the *prima facie* evidence rule is eroding,⁵⁵ other recent decisions have applied the *Philadelphia Bank* rule in fairly orthodox fashion.⁵⁶ In any event, the D.C. Circuit's subsequent *Heinz* decision, which relied heavily on structural evidence, largely repudiates the *Baker Hughes* denigration of structural evidence.⁵⁷

⁵³ United States v. Philadelphia Natl. Bank, 374 U.S. 321, 83 S. Ct. 1715 (1963).

⁵⁴ Id. at 362–363, 83 S. Ct. at 1741.

⁵⁵ United States v. Baker Hughes Inc., 908 F.2d 981, 991–992 (D.C.Cir. 1990).

⁵⁶ E.g., United States v. Oracle Corp., 331 F.Supp.2d 1098, 1108 (N.D.Cal. 2004) (applying *Philadelphia Bank* and concluding that government had not made out a *prima facie* case of illegality based on market concentration); R.C. Bigelow, Inc. v. Unilever NV, 867 F.2d 102, 110 (2d Cir. 1989), cert. denied, 493 U.S. 815, 110 S. Ct. 64 (1989) (structure still starting point for analysis).

⁵⁷ FTC v. H.J. Heinz Co., 246 F.3d 708 (D.C.Cir. 2001), See Jonathan B. Baker, *Mavericks, Mergers, and*

How about other factors? For example, should entry barriers be considered any differently in a regime where low consumer prices is merger law's goal, not merely the preservation of unconcentrated markets? In this particular case, the basic balance should not change all that much. Low entry barriers serve to reduce our concern about mergers under *either* the *Philadelphia Bank* theory that concentration itself was Congress' concern, or the more economic theory that merger policy is concerned about noncompetitive pricing. That is to say, easy entry entails that markets will not be concentrated unless the incumbents are not earning profits.⁵⁸ To this extent, there is little basis for deviating from the *Philadelphia Bank* presumptions simply because we no longer think concentration *per se* is an important goal of merger enforcement. To be sure, entry barriers are relevant, but low entry barriers cannot be presumed and it is up to the defendant to provide evidence that they are in fact low.

The various editions of the Merger Guidelines have gradually moved away from the government's historical commitment to *Philadelphia Bank's* prima facie approach.⁵⁹ In all events, today the target of merger policy is reduced output and higher prices, not high concentration for its own sake. The priority given to structural evidence should therefore be regarded as a means toward an end. If structural evidence is still the most reliable and easily used basic indicator of likelihood of collusion, then *Philadelphia Bank's* presumptive rule may continue to make sense. To this end, however, the "structural" rule that merger policy invites may not be anything as elaborate as the HHI or even the CR4. Perhaps the best indicator of likelihood of collusion in a market is the number of effective players, with effectiveness measured in terms of individual firms' realistic ability to upset collusion or oligopoly by cutting price. As that number exceeds eight or ten in the case of express collusion, or five to seven in the case of oligopoly, the likelihood of collusion diminishes rapidly. In markets with numbers of players equal to or less than these, any further reduction makes collusive behavior more likely.

Mergers of Competing Buyers

Exclusion: Proving Coordinated Competitive Effects Under the Antitrust Laws, 77 N.Y.U.L. Rev. 135, 150 (2002).

⁵⁸ Provided, that is, that entry barriers are measured under the Bainian formulation: an entry barrier is some condition in the market that permits the incumbent firms to earn monopoly profits while entry is deterred. On the difference between Bainian and Stiglerian entry barriers generally, see § 1.6; Herbert Hovenkamp, Antitrust and the Costs of Movement, __ Antitrust L.J. __ (2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1679849.

⁵⁹ On this point, see Carl Shapiro, The 2010 horizontal Merger Guidelines: from Hedgehog to Fox in Forty Years, 77 Antitrust L.J. #1 (2010) (discussing the 2010 Guidelines); Charles A. James, Overview of the 1992 Horizontal Merger Guidelines, 61 Antitrust L.J. 447 (1993) (discussing the 1992 Guidelines).

The exercise of market power by buyers, or monopsony, can impose social costs equivalent to those imposed by monopoly. To that end, cartels of buyers are unlawful per se, just like cartels of sellers.¹ While sellers exercise market power by reducing output below the competitive level and raising the price, buyers exercise market power by reducing their purchases and thus lowering the price paid to their suppliers. One common result is that buyers produce less as well. This leads to the additional result that if they also have market power in the product that they sell, the result of the lower buying prices is *increased* selling prices.² As a general matter, merger rules governing buyers become relevant in cases where the merger does not involve a significant threat of increased market power on the selling side of the market. If it did, then the ordinary rules governing mergers by sellers would apply.

Special rules for buyers are particularly important when firms buy and sell in markets of different sizes. For example, a lumber producer may purchase logs in a rather small geographic market because the transportation costs of unfinished logs are high in relation to value and sawmills are almost located near the source of supply. However, this same firm may sell finished wood products in a much larger market. As a result, concentration on the buying side of the market may be significantly higher than concentration on the selling side.

In *Pennzoil* the court found reason for anticompetitive concern in the merger of two out of six purchasers of Pennsylvania crude oil.³ The two merging firms, Pennzoil and Kendall, together with Quaker State, constituted the three largest purchasers, and together they purchased 93 percent of the crude oil sold by independent producers. Quaker State purchased 43 percent, Pennzoil 38 percent, and Kendall 12 percent.

The 2010 Horizontal Merger Guidelines contain a new section on mergers where the anticompetitive effects are felt mainly in the markets where the merging firms buy rather than where they sell.⁴ The Section does not provide a great deal of detail, except to indicate that buyer effects will be assessed in largely the same way as seller effects. “To evaluate whether a merger is likely to enhance market power on the buying side of the market, the Agencies employ essentially the framework described ... for evaluating whether a merger is likely to enhance market power on the selling side of the market.”

¹ See Hovenkamp, Federal Antitrust Policy, §4.1d.

² Id.

³ *United States v. Pennzoil Co.*, 252 F. Supp. 962 (W.D. Pa. 1965).

⁴ 2010 Horizontal Merger Guidelines, § 12.

V. The Significance of Product Differentiation

Product Differentiation as Undermining Collusion

Product heterogeneity has always provoked complexity in the analysis of markets. Most importantly, the perfect competition model does not work very well, and the deviations are difficult to account for systematically.¹ Firms in product differentiated markets face demand curves that slope downward, although perhaps only slightly. At any given output level there will be different customers willing to pay different prices for the output of different sellers. Likewise, substantial product differentiation often entails that different firms have different costs, that they attain scale economies at different levels of output, and that they rely on different sets of inputs in their production processes.

One effect of product differentiation is to enable post-merger firms to exact unilateral price increases when their merger involves two firms that are relatively proximate to each other in product space. But in most other situations the general effect of product differentiation is more benign. Price fixing and cooperative oligopoly behavior can be frustrated if firms are unable to agree on the profit-maximizing cartel price.² Product differentiation frustrates collusion in this fashion for two different reasons. First, it may give firms different marginal costs, and firms whose costs differ maximize their profits at different prices. Second, product differentiation may entail that firms face different demand curves and this may give them different profit-maximizing prices. Further, if the firms produce products of different levels of quality, a single cartel price will not work. For example, if Mercedes-Benz, Ford and Hyundai controlled the automobile market and fixed the same price, nearly all customers would buy Mercedes-Benz until the supply

¹On the difficulty of defining the relevant market in merger cases involving differentiated products, see *United States v. Oracle Corp.*, 331 F.Supp.2d 1098, 1121 (N.D.Cal. 2004):

A closer look at product differentiation demonstrates further difficulties in defining the relevant market in differentiated product unilateral effects cases. Price is one, but only one, of many ways in which to differentiate a product. A market of homogeneous goods can be seen as a market in which sellers have only one dimension in which to differentiate their product. One expects sellers in such a market to "differentiate" their products by lowering the price until price equals marginal cost. On the other hand, a differentiated product "market" is a market in which sellers compete along more dimensions than price. As a result, products competing against one another in a differentiated product market may have widely different prices. That products with widely different prices may, in fact, be in the same market complicates market definition considerably.

² See Frederic M. Scherer & David Ross, *Industrial Market Structure and Economic Performance* 279 (3d ed. 1990): "With perfect [product] homogeneity, there remains only one dimension along which rivalrous actions and counteractions can take place: price. In such a case, oligopolists have a particularly easy task of coordinating their behavior * * * When products are heterogeneously differentiated, the terms of rivalry become multidimensional, and the coordination problem grows in complexity by leaps and bounds." Accord Yale Brozen, *Entry Barriers: Advertising and Product Differentiation*, 115 in *Industrial Concentration: the New Learning* (Harvey J. Goldschmidt, H. Michael Mann, & J. Fred Weston, eds. 1974).

was exhausted. Then, if there was widespread agreement that Fords were superior to Hyundais, remaining customers would go to Ford and so on. The only way the cartel could work is if the firms settled on a scale of prices, with individual prices proportional to cost, or else designed to keep market shares stable.

For all these reasons, the most general consensus today is that most of the time product differentiation is a *mitigating* factor in merger analysis.³ Most of the time the main concern of merger policy is express or tacit collusion, and product differentiation makes collusion harder to maintain.

Product Differentiation: When Is a Merger Horizontal?

A merger is strictly "horizontal" only if 1) the two firms involved produce the same product (i.e., consumers cannot distinguish between the products of the two firms, or are completely insensitive to the differences); and 2) the firms sell the product in the same geographic market.

The real world contains few perfectly horizontal mergers. Identical gasoline stations across the street from each other are not exactly in the same market: one will be more attractive to west-bound traffic, the other to east-bound traffic. Nevertheless, a merger between them would almost certainly be treated as "horizontal" for antitrust purposes. Although customers may have preferences, the preferences are not strong enough to prevent substantial numbers of them from making a left turn rather than paying a monopoly price.

Discerning a line between horizontal and non-horizontal mergers that is meaningful for policy purposes is difficult, however. Courts characterize a merger as "horizontal" only after they have decided that the merger partners are in the same product and geographic markets. If they are not, courts characterize the competition between them as merely "potential" and the merger as "conglomerate." At that point, the mode of analysis changes significantly.⁴

The following mergers have been characterized as "horizontal": a merger 1) of a metal can manufacturer and a glass bottle manufacturer; 2) of a company that strip-mined coal and a company that deep-mined coal; 3) of a company that manufactured dry table wines and a company that manufactured sweet, fruity wines; 4) of a firm that manufactured heavy steel products and a firm that manufactured light steel products; 5) of a grocery chain whose stores were located in northeast Los Angeles and a grocery chain whose stores were located in southwest Los Angeles.⁵

³ See 4 Antitrust Law ¶ 942 (3d ed. 2009); B.F. Goodrich Co., 110 F.T.C. 207, 315 (1988): "Differences in product quality may make price differentials necessary to produce a stable market equilibrium, and achieving a consensus on such differentials is likely to be difficult."

⁴ Potential competition mergers are discussed in the Hovenkamp, Federal Antitrust Policy, ch. 13.

⁵ United States v. Continental Can Co., 378 U.S. 441, 84 S. Ct. 1738 (1964); United States v. General Dynamics Corp., 415 U.S. 486, 94 S. Ct. 1186 (1974); Coca-Cola Bottling Co., 93 F.T.C. 110 (1979); United States v. Columbia Steel Co., 334 U.S. 495, 68 S. Ct. 1107 (1948); United States v. Von's Grocery

It is difficult to generalize about the degree of competition that existed between these pairs of merger partners. In some cases, such as *Continental Can*, cross elasticity of demand between the cans and bottles was high for some customers. The court found that beer bottlers were very sensitive to price and would have responded to a small price increase in cans by switching to bottles, or vice-versa.⁶ By contrast, there were other customers who strongly preferred bottles to cans, and for whom the price of bottles would have to go very high before they would consider cans to be satisfactory substitutes.

Courts sometimes look at elasticity of supply when determining the extent to which two companies operate in the same relevant market. For example, *United States v. Aluminum Co. of America (Rome Cable)* involved the acquisition of a company that made copper and aluminum conductor by a much larger firm that made only aluminum conductor. The district court had found that aluminum and copper conductor should be placed in the same market because "there is complete manufacturing interchangeability between copper and aluminum, and manufacturers constantly review their product lines and 'switch readily from one * * * metal to another in accordance with market conditions.'" ⁷ The Supreme Court reversed, looking largely at demand conditions to hold that aluminum and copper conductor were separate products. The Supreme Court was probably wrong; if input costs were about the same and the firms could quickly substitute from aluminum to copper, or vice-versa, the competition between them was substantial.

In monopoly cases the defendant frequently argues that the relevant market should be larger than the market alleged by the plaintiff. The effect will be to make the defendant's market share smaller. The same strategy is not necessarily best in horizontal merger cases, however. The defendant will argue for a large market if the result is to make the relevant market appear less concentrated and the post-merger firm's market share appear smaller. For example, if a defendant manufacturer of men's cowboy boots acquired a manufacturer of women's cowboy boots, the defendant might argue that the relevant market should be all "footwear." The result would be to place more manufacturers in the relevant market, making it appear less concentrated, and perhaps also to lower the relative market shares of the two merging firms.

The defendant might also try to make the relevant markets much smaller, however—so small that the merger would not appear horizontal at all, but conglomerate. For example, the defendant might argue that men's cowboy boots and women's cowboy boots are really different markets. Therefore the merger should be treated as conglomerate and given the much more

Co., 384 U.S. 270, 86 S. Ct. 1478 (1966).

⁶ 378 U.S. at 451–52, 84 S. Ct. at 1744.

⁷ 377 U.S. 271, 285, 84 S. Ct. 1283, 1291–92 (1964) (J. Stewart, dissenting). See also *Owens-Illinois*, 5 Trade Reg. Rep. ¶ 23162 (F.T.C. 1992), which found that the market for glass containers contained several end users who would find substitution difficult—e.g., wine bottles, baby food bottles, etc. But on the supply side, glass bottle manufacturing equipment could be reconfigured in a few hours to permit the supplier to switch from one bottle to the next.

lenient potential competition standard.⁸ The ideal market definitions for the defendant would be "men's footwear" in one market and "women's footwear" in another. In that case the market would appear unconcentrated and the merging firms' market shares small, *and* the merger would be treated as conglomerate rather than horizontal.⁹

If information were perfect a might establish a sliding scale measuring the competitive impact of a merger in proportion to the closeness of competition (cross elasticity of demand and supply) between the two firms. Unfortunately, courts are not capable of such precise measurement. They have tended to divide all non-vertical mergers into two kinds: "horizontal" and "conglomerate." Once the court has characterized a merger as "horizontal," the fact that the firms make products that are not precisely similar, or sell them in somewhat different areas, is largely irrelevant. In *Von's Grocery*, for example, the court defined the relevant market as greater Los Angeles and simply added up the market shares of the two grocery chains who were parties to the merger. Once the merger had been classified as horizontal, it was no longer important that virtually all of Von's stores were in the southwest part of the city and all the Shopping Bag stores in the northeast. Surely such a merger did not eliminate as much competition as a merger between two grocery chains all of whose stores were across the street from each other. In fact, Los Angeles was 70 or 80 miles wide, but the lower court found that the average shopper would drive only 10 minutes to buy groceries. The only pairs of Von's and Shopping Bag stores that actually competed with each other were a few pairs toward the middle of the city.¹⁰ The Supreme Court's established framework left it only two alternatives, however: it could have looked at elasticity of supply and considered the likelihood that each chain would have built stores in the other chain's area in response to the second chain's price increase. In that case, it would have treated the merger as "conglomerate" and evaluated it under the potential competition doctrine. The alternative was to ignore the fact that the two chains had stores in different sections of town and treat the merger as purely horizontal. The Court chose the latter alternative.

The Supreme Court's analysis in *United States v. Columbia Steel Co.*¹¹ was more convincing. The government challenged United States Steel Corp.'s acquisition of Consolidated Steel as an illegal horizontal merger. Both companies manufactured "steel," but United States Steel fabricated heavy steel products, while Consolidated specialized in lighter products. The bidding record showed that United States Steel bid on approximately 2,400 jobs, while Consolidated bid on about 6,400 jobs. Each was successful about one-third of the time. However, the two companies had bid on the same job only 166 times.¹² Clearly, with respect to those 166 bids the two firms were "competitors." About 8500 jobs were bid by only one of the firms. The court found no "substantial" competition between the firms and dismissed the complaint. This

⁸ On this standard, see Herbert Hovenkamp, *Federal Antitrust Policy* § 13.4 (4th ed. 2011)(in press).

⁹ This is essentially the position that the defendant argued for in the *Alcoa (Rome Cable)* case. See note 7.

¹⁰ *Von's Grocery*, 384 U.S. at 295–96, 86 S. Ct. at 1492–93. (J. Stewart, dissenting). Justice Stewart concluded that the Von's and Shopping Bag stores actually in competition with each other accounted for "slightly less than 1% of the total grocery store sales in the area."

¹¹ 334 U.S. 495, 68 S. Ct. 1107 (1948).

¹² *Id.* at 515 n. 13, 68 S. Ct. at 1118 n. 13.

decision seems quite correct from both the demand and supply side of the market. The fact that the firms bid on the same jobs so infrequently suggested that each firm would encounter substantial costs in entering the market of the other, except in a few marginal cases.

The court in such a situation has two choices. Assuming elasticity of supply in the market is high (that is, that United States Steel easily could have produced Consolidated's products out of its existing capacity, and vice-versa), the court can look at the entire output of each company and treat the acquisition as a horizontal merger. The alternative is to examine the 166 projects on which both companies bid, and try to define some "market" that described them. In that case the relevant market would represent a trivial percentage of the output of the two firms. Furthermore, the joint-bid projects might not define an area having sufficiently low elasticities of supply and demand (when compared against the capacity and output of other producers) to be considered a relevant market for the purpose of merger law.

VI. Barriers to Entry in Merger Cases

The Appropriate Definition of Entry Barriers for Merger Policy

A barrier to entry is something that permits incumbents to price monopolistically for an unacceptable period of time before effective entry restores price and output to the competitive level. If barriers to entry are completely absent, any instance of monopoly pricing will result in immediate entry of sufficient magnitude to restore prices to the competitive level. In this case we can say that the market is not susceptible to monopoly pricing even if is dominated by a single firm or all the firms in the market have organized a cartel. Theoretically, even a merger to monopoly would not result in higher prices in such a market.¹

The Supreme Court has sometimes cited high entry barriers as a rationale for condemning a particular merger,² but has seldom cited low entry barriers as a reason for approving one. The decision in *Von's Grocery*,³ for example, has been criticized for ignoring the fact that entry barriers in the retail grocery business were extremely low. As a result monopolistic pricing in that market was unlikely.⁴ However, this criticism itself overlooks the fact that monopoly pricing was not the perceived evil of the merger in *Von's Grocery*. The perceived evil was the greater efficiency of the post-merger firm, which would force smaller grocers to go out of business or merge themselves. Superior efficiency is the world's greatest entry barrier, except perhaps for governmental entry restrictions. Few things make entry into a market more difficult than an incumbent's superior ability to produce a good product and sell it at a low price.

In thinking of barriers to entry, it is usually best to focus on output rather than prices as the relevant variable. Setting price is easy to do and prices are easily changed. By contrast, before output is determined one must have a plant, and the size of one's existing plant determines the range over which output can be varied. Under monopoly or collusive pricing, the firms in the market must reduce market-wide output to less than the competitive output. In measuring entry barriers, one must then consider whether sufficient new production can come into the market within a reasonably short time to restore output to the competitive level. Once the competitive level of output is restored, prices will naturally fall to the competitive level as well.

Entry is seldom instantaneous, and it may take considerable time. Incumbent firms will be able to sustain any monopoly pricing scheme until entry occurs of sufficient magnitude to raise output to the competitive level. For the antitrust policy maker, the time question requires a policy choice about how long a period of monopoly pricing is tolerable. We may decide, for example, that monopoly pricing that can last only three months is not worth the commitment of substantial

¹ See discussion *supra*.

² For example, *United States v. Phillipsburg Nat. Bank & Trust Co.*, 399 U.S. 350, 368–69, 90 S. Ct. 2035, 2045–46 (1970), citing state banking regulations that restrict entry as warranting condemnation of a horizontal merger. See also, *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 579, 87 S. Ct. 1224, 1230 (1967).

³ *United States v. Von's Grocery Co.*, 384 U.S. 270, 86 S. Ct. 1478 (1966).

⁴ See Richard A. Posner, *Antitrust Law* 127 (2d ed. 2001).

antitrust enforcement resources except in the case of easily formed and quickly abandoned price fixing schemes. If effective entry will occur within three months of a monopoly price increase, the social costs of any monopoly in that market will be smaller than the cost of identifying and enjoining it. In point of fact, however, the courts interpreting the antitrust laws have paid very little attention to this question of time, and there is no general judicial rule on the subject. By contrast, the 1992 Horizontal Merger Guidelines had suggested that entry barriers would be considered low for merger purposes when entry will occur "within two years from initial planning to significant market impact."⁵ The 2010 Guidelines do not commit themselves to a specific time, but they do require that entry "be rapid enough that customers are not significantly harmed by the merger, despite any anticompetitive harm that occurs prior to the entry."⁶ The 2010 Guidelines place a heavier emphasis on the history of entry ("recent examples of entry, whether successful or unsuccessful") than do previous Guidelines.⁷

In one important sense, economists and antitrust policy makers generally have different conceptions of barriers to entry. For the economist a true entry "barrier" is a market factor that prevents entry from occurring in the long run. That is, the economist is generally interested in determining whether there is an *equilibrium* in which entry will or will not occur. Factors that merely delay entry without deterring it indefinitely are generally called "impediments" to entry.⁸ By contrast, the antitrust policy maker generally thinks of entry barriers as factors that permit definite periods of monopoly pricing.⁹ Thus the antitrust policy maker's interest is not limited to those situations where the social loss caused by monopoly is infinite (that is, where monopoly pricing will last indefinitely), but where it is too large by some measure which is entirely a function of policy. This book generally uses the antitrust policy maker's definition: a barrier to entry exists if entry is deterred indefinitely as incumbents earn monopoly profits, *or* if entry is delayed sufficiently long so as to make any resulting monopoly output reduction socially undesirable.

For the antitrust policy maker, the problem of entry barriers revolves around three different issues: *first*, what is a suitable definition of barriers to entry? *second*, what kinds of market characteristics or practices qualify as entry barriers? *third*, what kinds of evidence in addition to the bare presence of these characteristics suggest that entry barriers are high enough

⁵ 1992 Horizontal Merger Guidelines, § 3.2. See John C. Hilke & Philip B. Nelson, *The Economics of Entry Lags: A Theoretical and Empirical Overview*, 61 *Antitrust L.J.* 365 (1993) (defending the 1992 Guidelines' two year standard).

⁶ 2010 Horizontal Merger Guidelines, § 9.1, available at <http://www.justice.gov/atr/public/guidelines/hmg-2010.html>.

⁷ *Id.*, §9.

⁸ See Darius Gaskins, *Dynamic Limit Pricing: Optimal Pricing Under Threat of Entry*, 3 *J. Econ. Theory* 306 (1971).

⁹ However, occasionally the Federal Trade Commission has used "barriers" and "impediments" in their technical economic sense. For example, *Echlin Mfg.*, 105 F.T.C. 410, 486 (1985), defining as an "impediment" to entry "any condition that necessarily delays entry into a market for a significant period of time and thus allows market power to be exercised in the interim."

to warrant antitrust intervention?

The definition of entry barriers given at the beginning of this section somewhat resembles the definition given by economist Joe S. Bain in the 1960's.¹⁰ Bain tended to regard qualifying barriers to entry as market factors that deterred entry even as the firms already in the market were charging prices above the competitive level.¹¹ The important difference between Bain's definition and the definition given above is that Bain was interested mainly in long run phenomena—that is, in things that would deter entry indefinitely.

The Bainian approach to entry barriers has some important advantages for antitrust policy purposes. Under it, one can measure the "height" of an entry barrier by the amount of monopoly pricing that will be permitted before entry occurs. For example, if firms in one market can raise prices 50% above cost without encouraging new entry, while firms in another market will encourage new entry as soon as they raise prices 20% above cost, we can say that entry barriers in the first market are higher than entry barriers in the second. We could generally say the same thing about duration. Entry barriers that permit two years worth of monopoly pricing can be said to be more severe than entry barriers that permit only six months of monopoly pricing.

Nevertheless, some features of the Bainian definition of entry barriers seem unacceptable to some economists. First, the definition is circular: it tells us what the *result* of entry barriers is without telling us anything about their substance. Second, the Bainian definition seems to lump socially desirable practices into the category of entry barriers. For example, Bain would define scale economies as an entry barrier. If economies of scale are substantial, a dominant firm may be able to set a price well above its costs without causing new entry, for the residual market will not be large enough for a new firm to bring its costs down to the same level.

The notion that scale economies can be an entry barrier seems irrational, because scale economies are themselves a form of efficiency. If the concept of entry barriers is to be tied to policy, we do not want to define them in such a way that makes efficiency the target of our condemnation.

Largely for this reason, George Stigler redefined the entry barrier as "a cost of producing (at some or every rate of output) which must be borne by a firm which seeks to enter an industry but is not borne by firms already in the industry."¹² The Federal Trade Commission has

¹⁰ Joe S. Bain, *Barriers to New Competition: Their Character and Consequences in Manufacturing Industries* (1962).

¹¹ "[T]he condition of entry may be evaluated by the extent to which established sellers can persistently raise their prices above a competitive level without attracting new firms to enter the industry." *Id.* at 5. Or as Bain defined them later, entry barriers measure "the extent to which, in the long run, established firms can elevate their selling prices above the minimal average costs of production and distribution" without "inducing potential entrants to enter the industry." Joe S. Bain, *Industrial Organization* 252 (1968).

¹² George J. Stigler, *The Organization of Industry* 67 (1968). See also C. von Weizsacker, *A Welfare Analysis of Barriers to Entry*, 11 *Bell J. Econ.* 399, 400 (1980) (an entry barrier is a "cost of producing which must be borne by a firm which seeks to enter an industry but is not borne by firms already in the

occasionally adopted a Stiglerian definition of entry barriers. For example, its *Echlin* decision defined entry barriers as "additional long-run costs that must be incurred by an entrant relative to the long-run costs faced by incumbent firms."¹³ However, in its subsequent *Flowers* decision, it reverted to a more Bainian definition.¹⁴

The Bainian definition is generally more consistent with antitrust policy, and most antitrust tribunals continue to use it. High entry barriers are not themselves an antitrust violation. If we had a rule of "no fault" monopolization, under which dominant firms could be penalized simply for having their dominant market positions, then a rule such as Stigler's makes sense. We should not use antitrust policy to punish a firm simply for attaining substantial scale economies. Although they can make entry difficult, scale economies are good for consumers.

But antitrust policy condemns *acts*, and entry barriers are simply one prop on the stage where the acts occur. For example, if the act is a merger, and the feared consequence is collusion or Cournot oligopoly, we want to know whether coordinated interaction such as this will be undermined by effective entry. The collusion itself does not become less harmful simply because the entry barrier, when found, turns out to be the result of economies of scale. In that case, no one is punishing the firms for having attained scale economies; the antitrust policy maker is simply saying that when entry barriers exist, from whatever source, collusion-facilitating practices will not be permitted.¹⁵

But suppose that the merger in this case is necessary to help the firms attain scale economies? If Firms A and B merge, post-merger AB will be able to take advantage of low cost production processes unavailable to either A or B separately. In that case the antitrust policy may wish to approve the merger, but not on the ground that there is no qualifying barrier to *entry*. Given that the scale economies deter entry, it will not occur. Rather, the AB merger forces the policy maker to consider whether the efficiencies that result from the merger are sufficient to offset any concerns that the merger will be anticompetitive.¹⁶ Indeed, one of the problems with the Stiglerian definition of entry barriers in this context, is that it would force the policy maker to approve the AB merger *whether or not* the merger expanded economies of scale. Under the Stiglerian approach, economies of scale do not count as an entry barrier. If no other barrier were found, the AB merger would be approved even if it created no additional efficiencies.

industry and which implies a distortion in the allocation of resources from the social point of view."); Harold Demsetz, *Barriers To Entry*, 72 *Amer.Econ.Rev.* 47 (1982) (barrier to entry is something that presents socially preferred entry from occurring).

¹³ *Echlin Mfg., Co.*, 105 F.T.C. 410, 485 (1985). Other times the FTC has found Stiglerian barriers, although it may not have required them. For example, *Owens-Illinois*, 5 *Trade Reg.Rep.* ¶ 23162 (FTC, 1992) (environmental restrictions that applied to new furnaces but exempted existing furnaces a barrier to entry).

¹⁴ *Flowers*, 5 *Trade Reg. Rep.* ¶ 22523 at p. 22,217 & n. 10 (Oliver dissent) (FTC, 1989).

¹⁵ See Herbert Hovenkamp, *Antitrust and the Costs of Movement*, ___ *Antitrust L.J.* ___ (2011); Richard Schmalensee, *Economies of Scale and Barriers to Entry*, 89 *J.Pol.Econ.* 1228 (1981).

¹⁶ On the efficiency defense in merger cases, see Herbert Hovenkamp, *Federal Antitrust Policy* § 12.2 (4th ed. 2011)(in press).

The Federal Trade Commission in *Echlin* seemed to lose sight of this. Once it had adopted the Stiglerian definition of entry barriers, the Commission concluded that in determining whether the new entrant really did have to incur additional costs, it should view each set of firms (incumbents and entrants) as of the time of their own entry. "The incumbent firm's apparently lower costs merely reflect compensation for the risk it incurred in entering," while the "potential entrant's apparently higher costs will decline * * * if its attempted entry is successful."¹⁷ Under this approach, even the fact that capital costs less for the incumbent firm than for the rival fails to qualify as an entry barrier. Since established firms generally have brighter futures than prospective entrants, they can often obtain capital more cheaply. To be sure, we do not want to "punish" firms because they have overcome the risks of entry and become successful. But defining this value of incumbency as an entry barrier hardly does that. It simply tells firms in such a market that certain practices, such as collusion-facilitating mergers, will receive closer scrutiny.

The one place that the entry barrier itself may become the antitrust violation is if the barrier is "artificial"—that is, if it was erected by the incumbent firm or firms as an entry deterrence device. But in such cases the barrier generally satisfies the Stiglerian definition, provided that the strategic practice is anticompetitive in the first place. For example, brand advertising, bad faith patent, copyright or trademark litigation, and certain kinds of preemptive vertical contracting¹⁸ can all be condemned as erecting "artificial" barriers to entry in a market that would not contain them but for the incumbents' strategic practice. Barriers of this kind may be effective to the extent that they increase the new entrant's per unit costs by a wider margin than they increase the costs of the incumbents.

What Constitutes an Entry Barrier?

In the final analysis, any merger policy that places a high value on economic efficiency and consumer welfare must designate as "barriers to entry" only those things that permit incumbent firms to engage in monopoly pricing while keeping outsiders from entering the market.

Economies of Scale

As the previous discussion notes, economies of scale are an important entry barrier under the Bainian definition that antitrust most generally employs. Scale economies entail that the firm contemplating entry must always consider, not merely the cost of producing, but also the cost of acquiring enough sales to make its own entry into the market profitable. Most "limit pricing" strategies—under which incumbent firms set price in such a way as to make entry unattractive—

¹⁷ *Echlin*, 105 F.T.C. at 485–486.

¹⁸ Such as where the incumbent firms buy up all the available supply of an essential input, or contract with suppliers that they will not sell the input to new entrants.

depend on the existence of scale economies.¹⁹ If a firm can make one unit per year at the same per unit cost that other firms face in making hundreds of units per year, then pricing strategies of this kind can generally not deter entry. Incumbents could exclude others only by selling their own output at cost or less. Cost prices are, of course, competitive; and below cost prices would be an unpromising entry deterrence strategy.

If economies of scale are substantial, the prospective entrant is forced to consider what the market price will be *after* its own entry is taken into account. For example, assume that minimum efficient operation in a market requires an output of 30 units. When this efficient cost level has been attained, the market would clear at an output of 100 units, assuming the price were competitive. Suppose the market currently contains three firms that are producing 30 units each, and price is about 15% above the competitive level. Will entry occur? Very likely not, even though prices are high. The new firm would have to reach an output level of 30 units in order to produce as efficiently as the incumbents. But any output level in excess of 10 units would mean that output would be too high to be sold at a profitable price. To be sure, if the prospective entrant forced its way in at the efficient level the other firms would lose money. But firms do not enter markets simply to impose losses on rivals. They enter in order to earn profits for themselves, and in this case the prospect of such profits is quite bleak.²⁰

For the same reason, in "network" markets where compatibility is essential, a large installed base can serve as a significant deterrent to entry. For example, even if a technically superior operating system to Microsoft Windows were to emerge, a significant impediment to development would be the difficulty in getting other software makers to write software applications for it, and no one wants to do that for a program that is used by only a few thousand people.²¹

¹⁹ For a good summary of the economics literature, see Richard J. Gilbert, *Mobility Barriers and the Value of Incumbency* 475, in *Handbook of Industrial Organization* (Richard Schmalensee & Robert Willig, eds. 1989).

²⁰ See, e.g., *FTC v. Staples, Inc.*, 970 F.Supp. 1066, 1087 (D.D.C. 1997), which found that both the scale economies of operating a very large store, and the scale economies of conducting a multistore operation, operated as effective entry barriers justifying condemnation of an office superstore merger:

A new office superstore would need to open a large number of stores nationally in order to achieve the purchasing and distribution economies of scale enjoyed by the three existing firms. Sunk costs would be extremely high. Economies of scale at the local level, such as in the costs of advertising and distribution, would also be difficult for a new superstore entrant to achieve since the three existing firms have saturated many important local markets. For example, according to the defendants' own saturation analyses, Staples estimates that there is room for less than two additional superstores in the Washington, D.C. area and Office Depot estimates that there is room for only two more superstores in Tampa, Florida.

²¹ See *United States v. Microsoft Corp.*, 56 F.3d 1448 (D.C.Cir. 1995); and see Christina Bohannon & Herbert Hovenkamp, *Creation Without Restraint: Competition Policy in Innovation Intensive Markets*, ch. 8 (2011); Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 *Calif. L. Rev.* 479, 502 (1998); Joseph Farrell & Garth Saloner, *Installed Base and Compatibility*, 76 *Am. Econ. Rev.* 940 (1986). On the economics of networks and some of the restraints on resource mobility

Risk and Size of Investment; Sunk Costs

One important element in the calculus of the prospective entrant is the amount of risk. Federal judges have tended to measure entry barriers by the absolute amount of money that it takes to enter an industry.²² But there is little reason for thinking that high investment, standing alone, deters entry. American and world capital markets are very efficient. If the investment is promising, it is generally as easy to raise \$100,000,000 as \$100,000. Indeed, there may be some relevant scale economies in the raising of capital that make it relatively easier to raise the larger amount. High initial investment, standing alone, should not generally be treated as a qualifying entry barrier.

The relevant question for the prospective entrant is not how much it must invest, but rather how much it will lose if the enterprise fails. For this reason, irreversible or "sunk" costs count heavily in its calculus.²³ For example, consider two firms contemplating entry into two markets where the absolute costs of entry are \$1,000,000. The first market is general delivery services, which requires the firm to have a general purpose warehouse, some loading equipment such as fork lifts, and some general purpose delivery trucks. If the new business fails, virtually all of these assets can readily be redeployed in other markets, for all of them can be committed to a variety of uses. In such a market the risk of entry is not all that high, even though the firm might have to attain a high volume in order to get its costs down.²⁴

By contrast, a second firm must use most of its entry money to build a specialized chemical plant that can be used only for this particular market. If this business fails, the plant will have a salvage value of only 10on the dollar. Given the same initial costs of entry, and scale economies of the same magnitude, entry is much less likely to occur into the second market than

that they can impose, see Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom* (2006).

²² See for example, *Kelco Disposal v. Browning–Ferris Indus. of Vt.*, 845 F.2d 404 (2d Cir.), affirmed on nonantitrust issue, 492 U.S. 257, 109 S. Ct. 2909 (1989) (high entry barriers found on facts that the cost of entering the market was \$300,000, that a firm that controlled 50% of the market and had a 10% return on revenue would realize a profit of only \$22,000 annually, and that the market supported only 1 participant in 1980 and 2 from 1981 to 1987); *Fruehauf Corp. v. FTC*, 603 F.2d 345, 357 (2d Cir. 1979) (high entry barriers established by \$10–20 million cost of efficient entry). A few decisions correctly state that high cost alone should not be considered an entry barrier. For example, *Lomar Wholesale Grocery, Inc. v. Dieter's Gourmet Foods, Inc.*, 824 F.2d 582, 599–600 (8th Cir. 1987), cert. denied, 484 U.S. 1010, 108 S. Ct. 707 (1988) (entry costs of \$1.5 million do not create high entry barriers).

²³ See Robert S. Pindyck, *Sunk Costs and Risk-Based barriers to Entry* (MIT Sloan School Working Paper 4723-09, Feb. 13, 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1350555; John B. Kirkwood and Richard O. Zerbe, Jr., *Reforming Entry Analysis in Merger Cases* (March 9, 2008), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=976032.

²⁴ For example, if it delivers across the city but has only a few stops, the trucks will tend to be emptier than if it has many stops.

the first.

Some courts have recognized the value of asset specificity, or sunk costs, as entry barriers. For example, in *Illinois Cereal Mills* the court noted that corn mills are highly specialized plants that have little salvage value after they are abandoned. This supported the Federal Trade Commission's conclusion that entry barriers into the market were high.²⁵ The 2010 Horizontal Merger Guidelines define sunk costs as “entry or exit costs that cannot be recovered outside the relevant market.”²⁶ That is to say, the specialized chemical plant in the above illustration may be capable of being sold, but it will have significant value only to another firm that intends to use it for the same purpose—that is, someone operating within the market. Since firms generally go bankrupt and exit from markets when there is excess capacity, such assets often have little value.

Also important, although probably not as important as the extent of sunk costs, is lead time. As the interval between the decision to enter a market and earliest market impact increases, entry becomes riskier. This is particularly true if the incumbent firms can respond strategically during the entry period. For example, incumbents may be able to increase output, seek out new customers or engage in more aggressive or more directed promotion that will take away much of a market's promise. They may also duplicate the product offering of the new entrant, thus depriving it of a unique market niche.²⁷ The longer it takes to build a plant, establish a minimum effective distribution network and make a first sale, the greater the risk of entry. Significant sunk expenditures further exacerbates the problem of delay.²⁸

Advertising, Promotion, and Customer Loyalty

Brand specific advertising in markets for branded products may constitute an entry barrier in both the Bainian and Stiglerian senses; nonetheless, there is a great deal of dispute about the height or meaningfulness of entry barriers produced by advertising. Simply put, if the effect of advertising dissipates very soon after the advertising occurs, then advertising is not much of a barrier to entry. The incumbent firm will have to keep on advertising in order to retain its lead,

²⁵ *FTC v. Illinois Cereal Mills, Inc.*, 691 F.Supp. 1131, 1138, 1144 (N.D.Ill. 1988), affirmed sub nom., *FTC v. Elders Grain*, 868 F.2d 901 (7th Cir. 1989) (degree of asset specialization suggested high entry barriers); *B.A.T. Indus.*, 104 F.T.C. 852 (1984) (same); *United States v. United Tote, Inc.*, 768 F.Supp. 1064 (D.Del. 1991) (same); *Owens–Illinois*, 5 Trade Reg.Rep. ¶ 23162 (FTC, 1992) (same).

²⁶ 2010 Guidelines, § 5.1, available at <http://www.justice.gov/atr/public/guidelines/hmg-2010.html>.

²⁷ This happened in *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 113 S. Ct. 2578 (1993).

²⁸ *Illinois Cereal*, 691 F.Supp. at 1145 (took nine years for another firm to build a new plant, suggesting high entry barriers); *FTC v. PPG Industries, Inc.*, 628 F.Supp. 881, 885 (D.D.C.) (planning time of two to six years suggested high entry barriers), affirmed in part, reversed in part on other grounds, 798 F.2d 1500 (D.C.Cir. 1986); *FTC v. Owens–Illinois, Inc.*, 681 F.Supp. 27, 51 (D.D.C.), vacated as moot, 850 F.2d 694 (D.C.Cir. 1988) (two year lead time with significant sunk expenditures entailed high entry barriers).

and prospective entrants can match the effect of the incumbent firm's advertising by spending an equivalent amount themselves.²⁹ Of course, there are economies of scale in advertising—the large firm can spread its costs over more output—but that is a barrier that comes from the scale economies rather than the advertising itself.

By contrast, if advertising has a cumulative effect that builds up over time, then the well established firm may have a distinct advantage over new entrants.³⁰ Advertising costs are generally "sunk"—that is, once spent, the money cannot be recovered when the firm fails. Thus, if advertising has a cumulative, or capital, value, it may constitute a substantial entry barrier. Of course, the height of the entry barrier caused by advertising is also open to dispute, and once again depends on that portion of advertising expenditures that have a kind of built up or cumulative value.³¹

Virtually the same analysis applies to things like customer loyalty, or goodwill. To the extent the effects accumulate, they can raise entry barriers.³² The only question of any real importance is how high such barriers are. In the great majority of cases, they are probably insignificant. But there are important exceptions. In markets where the product is complex, with many intricacies unfamiliar to the customer, and particularly where the product costs little relative to the customer's overall budget, goodwill and reputation count for a great deal. The customer must trust the seller because the relative cost of doing a complete product valuation oneself are rather high. By contrast, if the customer is in as good a position to evaluate the product or service as the producer is, then goodwill counts for much less.

Further, the entire problem of goodwill in antitrust analysis is wrapped up in more basic questions of product quality. A firm acquires goodwill with a positive value only to the extent it produces a good product, and the production of a good product is always a substantial entry barrier. For this reason courts have been reluctant to make expansive use of goodwill as a qualifying entry barrier.³³

Product Differentiation

²⁹ The empirical evidence indicates that prices are more competitive in markets where advertising is unrestricted. See J. Howard Beales & Timothy J. Muris, *State and Federal Regulation of National Advertising* 7–33 (1993).

³⁰ Making this point was the FTC's opinion in the Procter & Gamble merger case. 63 F.T.C. 1465, 1581 (1963).

³¹ Economists commonly address the basic issue by considering whether advertising has a fixed as well as a variable cost component. If advertising is nothing other than a variable cost, then its effect applies to current sales and dissipates almost as soon as the advertising stops. See *General Foods Corp.*, 104 F.T.C. 204, 344 (1984), which addresses the same issue in the context of predatory pricing. Numerous other cases are discussed in Elizabeth Mensch & Alan Freeman, *Efficiency and Image: Advertising as an Antitrust Issue*, 1990 Duke L.J. 321.

³² For example, *FTC v. Coca-Cola Co.*, 641 F.Supp. 1128, 1137 (D.D.C. 1986), vacated mem., 829 F.2d 191 (D.C.Cir. 1987) (customer preferences for branded soft drinks created entry barrier).

³³ But see *Henry v. Chloride, Inc.*, 809 F.2d 1334, 1342 (8th Cir. 1987) (brand loyalty an entry barrier).

Product differentiation, particularly when coupled with large amounts of brand advertising, can deter entry by denying potential competitors an opportunity to locate a profitable niche in the market. The principal cause of entry into product differentiated markets is the entrant's perception that the market contains an unfilled niche, or spot where its own differentiated offering will be more attractive to a certain set of consumers than the offerings of established firms. Under this theory, incumbent firms can deter entry by filling the product space with numerous variations. This was the basic claim in the unsuccessful attack launched by the Federal Trade Commission on the Ready-to-Eat breakfast cereals industry.³⁴ Under the theory, product differentiation and brand advertising feed on each other to produce the entry barrier.³⁵ The advertising both announces the varied product offerings and creates the impression that differentiation is much more substantial than it may be in fact.³⁶ As Joe Bain once opined, "the psychology of consumers is very evidently such that they are frequently susceptible to the blandishments of product-differentiating sellers. * * *"³⁷

But several economists have been suspicious of the notion that either advertising or product differentiation constitute qualifying entry barriers. The basic Chicago School position has been that advertising is valuable precisely to the extent that it communicates information to consumers, and product differentiation is valuable to the extent that product variety satisfies consumer taste. So if either of these things must be counted as a barrier to entry, it counts in exactly the same way that producing a superior product is an entry barrier. Any time incumbents are giving customers what they want, new entrants will have a tougher time finding profits.³⁸

Government Entry Restrictions

Virtually everyone agrees that government regulation, licensing and entry restrictions collectively create among the greatest and most effective entry barriers. Some forms of regulation are entry barriers in the Stiglerian sense—particularly grants of monopoly rights (which make the cost of entry by the next firm infinitely high) or regulatory standards that grandparent in existing plants. For example, if an environmental statute exempts existing plants from expensive compliance, new firms will face a cost that existing firms do not face. Such regulations are entry

³⁴ Kellogg Co., 99 F.T.C. 8 (1982). See Richard Schmalensee, Entry Deterrence in the Ready-to-Eat Breakfast Cereal Industry, 9 Bell J.Econ. 305 (1978).

³⁵ For example, in William S. Comanor & Thomas S. Wilson, Advertising, Market Structure, and Performance, 49 Rev. Econ. & Statistics 423 (1967); H. Michael Mann, Seller Concentration, Barriers to Entry, and Rates of Return in Thirty Industries, 1950–1960, 48 Rev. Econ. & Stat. 296 (1966). See also James M. Falvey and Andrew N. Kleit, Commodity Exchanges and Antitrust, 4 Berkeley Bus.L.J. 123 (2007).

³⁶ See generally, James Ferguson, Advertising and Competition: Theory, Measurement, Fact (1974); Robert E. McAuliffe, Advertising, Competition and Public Policy: Theories and New Evidence (1987).

³⁷ Joe S. Bain, *Barriers to New Competition*, note 10 at 216.

³⁸ See Yale Brozen, Entry Barriers: Advertising and Product Differentiation, 115 in *Industrial Concentration: the New Learning* (Harvey J. Goldschmidt, H. Michael Mann, & J. Fred Weston eds. 1974). See also Harold Demsetz, Accounting for Advertising as a Barrier to Entry, 52 J.Bus. 345 (1979).

barriers only in the short run. Eventually, the old plants must be replaced and the new ones will need to comply. But in this case the short run could be a period of several years or even decades.

The role of government regulation in creating entry barriers is often used as part of an argument for the inefficiency of regulation. Regulation, after all, creates and encourages monopoly. But there is no necessary connection between the efficiency of regulation and its role in creating entry barriers. Regulation that is quite efficient in that it is a suitably tailored correction for a real market failure might nevertheless entail restrictions on entry, or requirements that increase the cost, risk or minimum efficient scale of new entry. By contrast, very poorly constructed regulatory policies might permit free entry.

Not all forms of government regulation effectively deter entry. As a result, one cannot automatically reason from the presence of regulation to the presence of entry barriers. For example, a truck driver must generally have a commercial drivers' license, but the license is given quite readily to those who pass a test and pay a small fee. There is no reason for thinking that the license requirement itself serves to deter entry. Regulation serves as an entry barrier only if it has some kind of limiting or "bottleneck" effect.

The fact that an entry barrier originates from the government may have an effect on our antitrust analysis. Indeed, in some cases regulated industries are simply exempted from the application of the antitrust laws altogether.³⁹ Often, however, government regulation is evaluated in exactly the same way that other entry barriers are—that is, as creating a set of circumstances that make certain kinds of antitrust violations possible. For example, in its *Hospital Corporation* decision, the Seventh Circuit noted that a regulatory requirement that hospitals obtain a "certificate of need" could operate as a substantial entry barrier.⁴⁰ In this case collusion that resulted from a merger would lead to an output reduction and excess capacity. But in proving need, a firm desiring to enter the market needed to show that the existing hospitals were currently operating at capacity. Thus the collusion itself could create the entry barrier.

In order to constitute a barrier to entry, a regulation need not deter entry expressly or even define conditions under which entry can occur, as in the *Hospital Corporation* case. Sometimes regulation discourages entry simply because compliance is subject to scale economies. For example, if an air cleaning device is required by law but works effectively only on very large plants, then the large plant may be necessary for effective market entry. A great deal of economics literature argues that certain regulatory regimes such as OSHA and the federal environmental regulations deter entry by increasing the operating costs of relatively small firms.⁴¹

³⁹ Hovenkamp, *Federal Antitrust Policy*, 19.

⁴⁰ *Hospital Corp. of Am. v. FTC*, 807 F.2d 1381, 1387 (7th Cir. 1986), cert. denied, 481 U.S. 1038, 107 S. Ct. 1975 (1987); *United States v. Rockford Memorial Corp.*, 717 F.Supp. 1251 (N.D.Ill. 1989), affirmed, 898 F.2d 1278 (7th Cir.), cert. denied, 498 U.S. 920, 111 S. Ct. 295 (1990) (same).

⁴¹ See Michael T. Maloney & Robert E. McCormick, *A Positive Theory of Environmental Quality Regulation*, 25 *J.L. & Econ.* 99 (1982); George R. Neumann & John P. Nelson, *Safety Regulation and Firm Size: Effects of the Coal Mine Health and Safety Act of 1969*, 25 *J.L. & Econ.* 183 (1982); Peter

Evidence Required to Prove Entry Barriers or Their Absence

Operating under the prima facie illegality rule of *Philadelphia Bank*,⁴² the government has historically taken the position that it must show a relevant market and sufficiently high concentration levels to warrant condemnation of the merger. Then the defendant may rebut this evidence with a showing that entry barriers are so low that collusive or oligopoly pricing is not likely. In *Baker Hughes*, the court rejected the government's contention that this evidence must show that such entry would be "quick and effective" in disciplining any attempt at supracompetitive pricing.⁴³ The court suggested that such a standard would "require of defendants a degree of clairvoyance alien to section 7, which * * * deals with probability, not certainties." But this is a peculiar reading of § 7, which condemns mergers that "may lessen" competition; it does not exonerate mergers that "may not lessen" competition. That is, the lack of certainty works to the advantage of the government or plaintiff, not to the defendant. In this particular case, concentration levels were above 4000 HHI and the defendant's post merger market share may have been as much as 70%.⁴⁴

But that criticism does not resolve the underlying dispute about what must be shown to refute claims of anticompetitive consequences when market concentration levels are high. Clearly, there must be some kind of showing that entry would be "effective." Otherwise the whole entry barrier inquiry becomes meaningless. A showing that entry would be "quick" is also important, provided that quick is interpreted to refer to the minimum length of time that monopoly pricing is tolerable as a policy matter. If we make the policy decision that collusive or oligopoly pricing is not a problem when it will be disciplined by new entry in two years or less, then "quick and effective" entry should refer to entry that will occur within two years or less, and that will have a substantial impact on the incumbents' abilities to keep the market price above the competitive level.

In explaining how its decision squared with the *Philadelphia Bank* presumptions, the *Baker Hughes* court suggested that it would be "anomalous" to place a high burden on defendants seeking to show low entry barriers when, because of high concentration, it was easy for the government to establish a *prima facie* case.⁴⁵ But the truth seems quite to the contrary. A *prima facie* case is easy to establish when a relatively quick look indicates that a merger is highly likely to be anticompetitive. In that case we want defendants to come forward with *more* compelling

Pashigian, The Effect of Environmental Regulation on Optimal Plant Size and Factor Shares, 27 J.L. & Econ. 1 (1984); Ann P. Bartel & Lacy Glenn Thomas, Direct and Indirect Effects of Regulation: A New Look at OSHA's Impact, 28 J.L. & Econ. 1 (1985). See also Jonathan B. Wiener, Global Environmental Regulation: Instrumental Choice in Legal Context, 108 Yale L.J. 677 (1999) (discussing many of the issues as they affect worldwide decision making).

⁴² United States v. Philadelphia National Bank, 374 U.S. 321, 83 S. Ct. 1715 (1963).

⁴³ United States v. Baker Hughes Inc., 908 F.2d 981, 983–987 (D.C.Cir. 1990).

⁴⁴ Id. at 983 & n.3. There was some ambiguity about market shares because different data measured them in different years.

⁴⁵ Id. at 992.

evidence that the merger will not have the feared anticompetitive consequences.

One kind of evidence that courts have frequently viewed as important is historical evidence of entry or its absence.⁴⁶ In fact, a history of previous entry may or may not be important, depending on the circumstances. On the one hand, the best evidence that entry is possible is actual entry. On the other, the fact that entry by firm number n occurred is not necessarily good evidence that entry by firm number $n + 1$ will occur, since the latter firm generally faces a market in which market output is higher than the former firm faced. That is to say, when firm $n + 1$ considers entry, the output of firm n must be added to that of previous incumbents, and so on.⁴⁷

These considerations are relevant only in markets that are fairly concentrated and where there are at least modest scale economies. If a market contains 100 firms and low levels of output can be efficient, then entry by additional firms will not likely have much measurable impact on the market price. Firm $n + 1$'s position will not differ measurably from firm n 's. Likewise, ongoing entry and exit from a market is quite good evidence that entry barriers are low, at least if the firms that are exiting are not the same as those that are entering and at least some of the entering firms achieve substantial size.

The absence of historical entry is good evidence of high entry barriers only when the industry is sufficiently profitable to make entry worthwhile in the first place. If the industry is competitive, or if the market is shrinking and firms are losing money, then entry is not likely to occur even if barriers are low.⁴⁸

When a court looks at historical evidence of entry it must consider not only the fact of

⁴⁶ E.g., *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 717 & n.13 (D.C.Cir. 2001); *Anti-Monopoly v. Hasbro*, 958 F.Supp. 895 (S.D.N.Y.), *aff'd*, 130 F.3d 1101 (2d Cir. 1997), *cert. denied*, 525 U.S. 813, 119 S. Ct. 48 (1998) (frequent entry into board game industry undermined any inference that market power could be exercised there); accord *United States v. Waste Management, Inc.*, 743 F.2d 976, 983 (2d Cir. 1984). See also *United States v. Oracle Corp.*, 331 F.Supp.2d 1098, 1105, 1108, 1134–1138 (N.D.Cal. 2004) (noting that Microsoft seemed to be poised to enter the government's proposed product market).

⁴⁷ For example, suppose that market demand elasticity is around one, that price before firm n contemplates entry is \$1.00, and that firm n 's entry will increase market output by roughly 10%. Price will then drop to roughly 90 cents, assuming that other firms hold their output constant. When firm n computes the profitability of entry, it must look at this *post*-entry price. After all, it will make its profits only in the post-entry market. If firm n believes the 90 cent price at entry will be profitable, it will enter. But then when firm $n + 1$ looks at the same market, its calculus will be somewhat different. Assuming it is planning to be the same size as firm n , its own output will increase total market output by about 9%, and this will drive prices down to roughly 82 cents, assuming once again that the incumbents hold their own output constant. Entry that might have been profitable at the 90 cent price may not be profitable at the 82 cent price. So in this case the fact that n entered is not particularly good evidence that *further* entry will occur.

⁴⁸ See *Echlin Mfg., Co.*, 105 F.T.C. 410, 485 (1985) (absence of entry where incumbents were not doing well did not suggest high entry barriers).

entry but also its scale.⁴⁹ Markets may often have small niches or pockets where new firms can carve out a tiny position for themselves without much affect on competitive conditions in the market as a whole. In some markets, for example, there are two or three dominant players with market shares exceeding 30%. In addition there is a significant fringe of firms with 1% market shares, and entry into the fringe is quite common. However, none of the fringe firms ever grows to be a major competitor with the dominant firms. This was the situation in *Waste Management*,⁵⁰ where numerous firms had entered the market but none had attained significant size. The court found low entry barriers and dismissed the complaint.

Why might repeated small scale entry with no threat to dominant firms occur? The two most likely reasons are that (1) the new entrants have low entry costs but steeply rising marginal costs; or (2) the market has small pockets that are readily served by small firms, while the market as a whole is subject to substantial economies of scale.

Government regulation can create the first situation. For example, suppose that the sovereign imposes heavy regulatory burdens subject to scale economies on any firm with non-owner employees, but leaves single-person entrepreneurs free of regulation. In that situation one might see two or three large firms supplying the service, and a revolving door filled with sole proprietors coming in and out. But the sole proprietors may never pose much of a threat to the larger firms, particularly if the small firms have higher costs.

The more likely story in *Waste Management* was that full service trash hauling required a fairly large operation able to serve a variety of needs and to cover a wide area. Nevertheless, there were small firms who could serve particular customers such as apartment buildings. In that case the profit maximizing strategy for the larger firms might be to set price at the cartel or oligopoly level to the market as a whole, but leave the small pockets to a fringe of tiny firms. In such a market, entry into the fringe is not particularly good evidence that any attempt by the dominant firms to charge monopoly prices will be effectively disciplined.⁵¹

Incidentally, the stories told above suggest that the markets in cases such as *Waste Management* were defined too broadly. In both, the large scale firms could raise price above the competitive level without (a) risking substantial incursions by the fringe, or (b) losing too many customers to the fringe. In that case, the entry that is being observed is not entry into the market in question—the output of the dominant firms—at all, but rather into an adjacent market occupied by the tiny firms. So perhaps the relevant market should have been "full service trash disposal" or some other grouping of sales from which tiny entrants were excluded.

⁴⁹ On this point, see Richard Schmalensee, *Ease of Entry: Has the Concept Been Applied Too Readily?*, 56 *Antitrust L.J.* 41 (1987).

⁵⁰ Note 46.

⁵¹ See *Echlin Mfg.*, note 48, which found significant entry barriers because, although several firms had entered, they were small, making up about 2% of market, and the shares of dominant firms remained unchanged.

Should the likelihood of entry be measured by subjective or objective evidence? In many cases, objective evidence is the only kind that is available. Further, economists are generally more favorably disposed toward objective evidence because they tend to treat ease of entry as an ongoing market condition. What any particular firm plans to do is really not all that important. By contrast, courts have sometimes sought subjective evidence. For example, in the *Country Lake* case the court relied on statements from outside firms that they would enter the market quickly in response to a monopoly price increase there.⁵²

Such evidence should generally not be taken at face value, however. As an abstract proposition, any entrepreneur will look with interest in any market where prices have increased to monopoly levels. Often entry barriers emerge only upon inspection. Indeed, some of them, such as high capital costs, may not be discovered until someone actually applies for a loan. Furthermore, statements from competitors need to be discounted when the competitors themselves have an interest in seeing the merger approved. Higher prices resulting from a merger in an adjacent geographic area may permit firms in the first area to raise their prices as well. Finally, although testimony that a firm would enter is arguably evidence of low entry barriers, testimony that a firm would not enter is not very good evidence of high barriers. Entry can come from too many sources, including firms in adjacent markets (both product and geographic) and "firms" that do not even exist at the time the question is asked.

Often the most reliable evidence of entry barriers is objective, based on empirical studies from industrial organization economists and others who are knowledgeable about the industry in question. Such experts generally assume that the relevant decision makers are profit maximizers, and then consider whether entry would be a profitable strategy in the market at issue.⁵³ The 2010 Horizontal Merger Guidelines generally follow this approach.

Entry Barrier Analysis Under the 2010 Horizontal Merger Guidelines

The 1984 Merger Guidelines had contained a rather uninformative statement on entry barriers that gave great weight to their absence, without defining them in any detail: "If entry into a market is so easy that existing competitors could not succeed in raising price for any significant period of time, the Department is unlikely to challenge mergers in that market."⁵⁴

One unforeseen consequence of this thin discussion was that the Justice Department's antitrust division began to lose many of its own cases. Even though the markets at issue were highly concentrated, the courts did not find significant entry barriers. For example, in *Waste Management*,⁵⁵ the court held that a horizontal merger challenged by the Division did not violate

⁵² *United States v. Country Lake Foods, Inc.*, 754 F.Supp. 669, 679 (D.Minn. 1990).

⁵³ A few examples, at various degrees of generality, are Marvin B. Lieberman, *Excess Capacity as a Barrier to Entry: An Empirical Appraisal*, 35 *J.Indus. Econ.* 607 (1987); Michael Spence, *Notes on Advertising, Economies of Scale, and Entry Barriers*, 95 *Q.J.Econ.* 493 (1980); Richard Schmalensee, *Entry Deterrence in the Ready-to-Eat Breakfast Cereal Industry*, 9 *Bell J.Econ.* 305 (1978).

⁵⁴ 1984 Guidelines, 49 *Fed.Reg.* at 26,832.

⁵⁵ *United States v. Waste Management, Inc.*, 743 F.2d 976 (2d Cir. 1984).

§ 7 because barriers to entry in the solid waste disposal industry were very low. The combined market share of the merging firms was 48.8%, which the court acknowledged to be *prima facie* illegal.⁵⁶ The court also noted that the Supreme Court has never held that evidence of low entry barriers could be used to rebut a showing of *prima facie* illegality. Nevertheless, in this instance entry barriers were so low that people had been known to enter the market at issue by working out of their homes. Citing the Division's own Guidelines against it, the court concluded that if the Division "routinely considers ease of entry as relevant to determining the competitive impact of a merger, it may not argue to a court addressing the same issue that ease of entry is irrelevant."⁵⁷

The Government corrected this problem with a much more detailed and explicit statement on entry barriers in the 1992 Horizontal Merger Guidelines. The guiding question in the 1992 Guidelines was whether profitable entry could occur within two years, of sufficient magnitude to drive prices back down to pre-merger levels. Part of the Guidelines' analysis of entry conditions is really included in its basic market definition.⁵⁸ The 1992 Guidelines included in the market firms that could easily and economically shift to manufacturing the relevant product, or that could easily begin shipment of an existing competitive product into the relevant geographic market. The 1992 Guidelines referred to such firms as "uncommitted" entrants—that is, firms that can move into competition with the merging firms with relatively little risk or costly redeployment of resources. These are included in the market itself.⁵⁹ The 2010 Horizontal Merger Guidelines use similar analysis, although they have changed the term from “uncommitted” to “rapid.” These “rapid” entrants are considered to be “in the market” even though at the time of analysis they may not be making any sales there. The Guidelines give this illustration:

Farm A grows tomatoes halfway between Cities X and Y. Currently, it ships its tomatoes to City X because prices there are two percent higher. Previously it has varied the destination of its shipments in response to small price variations. Farm A would likely be a rapid entrant participant in a market for tomatoes in City Y.⁶⁰

So under the 2010 Guidelines analysis Farm A would be counted as if it were actually selling in City Y.

The 1992 Guidelines had evaluated entry barriers by considering whether the merging firms could profitably maintain a price increase above premerger levels.⁶¹ The 2010 Guidelines

⁵⁶ See *United States v. Philadelphia National Bank*, 374 U.S. 321, 364–366, 83 S. Ct. 1715, 1742–1743 (1963).

⁵⁷ Other cases that the Division lost on the entry barriers issue include *United States v. Baker Hughes Inc.*, 908 F.2d 981, 983 (D.C.Cir. 1990); *United States v. Calmar*, 612 F.Supp. 1298 (D.N.J. 1985); *United States v. Country Lake Foods*, 754 F.Supp. 669, 678 (D.Minn. 1990).

⁵⁸ Market definition analysis under the 2010 Merger Guidelines is discussed in Hovenkamp, *Federal Antitrust Policy*, § 3.8.

⁵⁹ 1992 Guidelines, §§ 1.0 & 1.32.

⁶⁰ 2010 Horizontal Merger Guidelines, § 5.1, Example 16. The 2010 Guidelines are available at <http://www.justice.gov/atr/public/guidelines/hmg-2010.html>.

⁶¹ 1992 Guidelines, § 3.0.

largely state the same concern, although they express it a little differently. They want to know whether the “prospect of entry into the relevant market will alleviate concerns about adverse competitive effects.” If the output reduction necessary to support such a price increase would be undermined by new entry, then entry barriers are said to be low. The Guidelines have thus adopted a Bainian rather than a Stiglerian definition of entry barriers.⁶² Under the 2010 Guidelines “Entry by a single firm that will replicate at least the scale and strength of one of the merging firms is sufficient.” Entry by firms operating at a smaller scale may be sufficient “if such firms are not at a significant competitive disadvantage.”⁶³

In measuring likelihood of entry, the Guidelines note that entry can be counted as “likely” only if the prospective entrant anticipates that it will be profitable. This implies that the Agencies will rely on objective criteria in determining whether entry will effectively discipline monopoly pricing. “Entry is likely if it would be profitable accounting for the assets, capacities, and capital needed and the risks involved, including the need for the entrant to incur costs that would not be recovered if the entrant later exits.”⁶⁴

Finally, entry will be deemed “sufficient” only if it would be on a large enough scale to “deter or counteract the competitive effects of concern.”⁶⁵ This language, and somewhat similar language in the previous Guidelines, was apparently intended to correct the problem that showed up in the *Waste Management* case.⁶⁶ Although entry occurred frequently, it was always at a very small scale that appeared to have little impact on the larger firms in the market.

The entry provisions contained in the 2010 Guidelines seem well calculated to add some rigor to entry barrier analysis in concentrated markets. They also suggest that ease of entry will not be presumed in a great variety of cases, but will have to be established. No matter how the burden of proof is formally assigned, a sizeable part of the burden of coming forward with the relevant evidence will lie with the merging firm or firms

⁶² On the two definitions, see Hovenkamp, *Federal Antitrust Policy*, § 12.6a.

⁶³ 2010 Horizontal Merger Guidelines, §9.3

⁶⁴ *Id.*, § 9.2.

⁶⁵ *Id.*, § 9.3.

⁶⁶ Note 55.

VII. Other Factors Affecting the Competitive Consequences of Mergers

Predicting the likely competitive consequences of a merger does not necessarily end with an examination of market concentration and the market shares of the merging firms. Indeed, it ends at that point only if concentration is so low, or the market shares so small, that the merger clearly poses no threat. Upwards of that point, however, the decision maker must look further at market factors other than those affecting concentration per se.

One of these non-market-share factors is ease of entry, which was discussed in the previous section. Others include the power and sophistication of trading partners, the adequacy of irreplaceable materials, excess capacity, marketing and sales methods, the history of anticompetitive practices in the industry, and perhaps any "trend" toward concentration in the market.

Sophistication and Power of Trading Partners

Courts have sometimes cited the presence of powerful or sophisticated buyers or suppliers as militating against the likelihood of any exercise of market power by a merging firm.¹ For example, *Country Lake* held that a merger of dairies was not likely to injure competition because, although that market was concentrated, the vertically related market containing food distributors, who purchased the dairies' milk and resold it to grocers, was even more concentrated. Three distributors controlled ninety percent of the whole. "This concentration gives significant market power to these distributors because no dairy * * * could afford to lose their business which would happen if the dairy imposed a price increase unrelated to normal market conditions."² Further, if the dairies should collude, "individual grocers could easily unite to purchase through a large distributor," which would then be able to turn to a large supplier outside the government's proposed geographic market.

At least five large milk purchasers in the proposed market were

sensitive to and carefully monitor changes in fluid milk prices. They believe they would recognize price increases that are not based on normal market conditions. They declared

¹ The argument comes from Herbert Hovenkamp, *Mergers and Buyers*, 77 Va. L. Rev. 1369 (1991). See also 4 Antitrust Law ¶ 943 (3d ed. 2009).

² *United States v. Country Lake Foods, Inc.*, 754 F.Supp. 669, 679 (D.Minn. 1990). See also *FTC v. Elders Grain, Inc.*, 868 F.2d 901, 905 (7th Cir. 1989) ("concentrated and knowledgeable buying side" makes seller collusion more difficult); *F.T.C. v. R.R. Donnelley & Sons Co.*, 1990-2 Trade Cas. ¶ 69239, 1990 WL 193674 (D.D.C. 1990) (merger probably not anticompetitive, given sophistication of the relatively small number of customers for one aspect of the post-merger's firm's printing output). Accord *United States v. Baker Hughes, Inc.*, 908 F.2d 981, 986 (D.C.Cir. 1990); *Owens-Illinois*, 5 Trade Reg.Rep. ¶ 23162 (FTC, 1992). Contrast *FTC v. University Health, Inc.*, 938 F.2d 1206, 1213 n. 13 (11th Cir. 1991), which rejected the claim that the buyers, large sophisticated health insurers, would discipline any price increases by hospitals. The insurers were found to have little choice but to pay the bills of their insureds, who made the claims.

that a substantial increase in milk prices would prompt them to aggressively negotiate a reduction or to seek a substitute or replacement supplier of fluid milk. If competitive prices could not be found within the [relevant market,] the purchasers would seek supplies from outside dairies.³

Large, sophisticated buyers can be particularly effective in combatting collusion if they can force sellers to make secret bids or negotiate nonpublic price reductions—that is, if the buyers are able to force cartel members to cheat on the cartel in a way that minimizes the risks of detection. The 2010 Merger Guidelines note that large buyers may be in a position to “undermine coordinated effects,” which is another way of stating that they might be disruptive to an upstream cartel.⁴

A merger is to be evaluated by its impact on all buyers, however, not just on the larger more sophisticated ones. For example, in *Archer–Daniels–Midland* the court upheld a merger after noting the presence of powerful buyers who forced the sellers to bid against each other in secret.⁵ But there was also a larger group of smaller, less powerful buyers, who were generally constrained to accept the sellers' offerings at the posted list prices. The legality of the merger should have been evaluated by its impact on the latter group of buyers, for the merger may “lessen competition” as to them. The 2010 Guidelines provide as much by noting that “even if some powerful buyers could protect themselves, the Agencies also consider whether market power can be exercised against other buyers.”⁶

Further, one must not generalize too quickly from the existence of powerful or knowledgeable vertically related firms to the conclusion that monopoly profits cannot be earned in the market under consideration. In *all* cases, knowledgeable suppliers (or buyers) are likely to restrain monopoly pricing only to the extent that it serves their own interests. The entire proposition that knowledgeable suppliers or buyers will restrain pricing rests on the assumption that doing so is more profitable than simply profiting from any monopoly structure that already exists. This may not always be so.

Suppose, for example, that dairies producing fluid milk threaten to monopolize that market in a particular region.⁷ The result will be reduced output of milk and higher milk prices to customers. Middlemen, or distributors who purchase the milk and deliver it to stores, will also be injured, however, because the milk monopoly will produce less milk in response to lower customer demand at the monopoly retail price. The distributors will experience the volume reduction but not the higher profits on the milk that is still sold.

³ *Country Lake*, 754 F.Supp. at 679.

⁴ 2010 Guidelines, § 8. See also Carl Shapiro, *The 2010 horizontal Merger Guidelines: from Hedgehog to Fox in Forty Years*, 77 *Antitrust L.J.* #1 (2010), who discusses the powerful buyer section in the 2010 Guidelines at some length.

⁵ *United States v. Archer–Daniels–Midland Co.*, 781 F.Supp. 1400, 1415 (S.D.Iowa 1991).

⁶ See 2010 Guidelines, § 8. On market definition in the presence of price discrimination, see Hovenkamp, *Federal Antitrust Policy*, §§ 3.8c, 3.9b.

⁷ See *Country Lake*, note 2.

If one considers this situation as static, then it is clearly in the distributors' best interest to undermine the retail monopoly, either by integrating into milk production for themselves or else by finding others willing and able to enter the milk production market in competition with the monopoly. But such a solution tends to eliminate monopoly from the market altogether and, from the distributor's position, that is not necessarily the most profitable solution. It may be more profitable for the milk producers and the distributors to come to an agreement maintaining the monopoly but dividing its profits in such a way that both would be better off than they would be under a more competitive regime.

To the extent such an alternative is available, one cannot trust the presence of knowledgeable suppliers or buyers in a market to eliminate monopoly; they may simply preserve the monopoly but use it to their advantage. As a general rule, the *distributors'* preferences in the preceding example must be ranked in this order:

- (1) *worst*: the suppliers monopolize or cartelize their market and all the monopoly profits accrue to the suppliers; in this case, the distributors experience only the output loss.
- (2) *better*: both the suppliers' and the distributors' markets are competitive; the distributors obtain the full benefit of competition in the upstream market, but earn no monopoly profits.
- (3) *still better*: the suppliers' market is monopolized or cartelized, but the suppliers and distributors share the profits.
- (4) *best*: the suppliers' market is competitive and the distributors' market is monopolized, with all monopoly profits accruing to the distributor.⁸

Which of these occurs in any given case is an empirical question, and depends on a variety of factors. Importantly, however, the distributors facing a supplier cartel (situation 1) will perhaps at best achieve only situation two by vertically integrating into supply itself or setting up other suppliers in the business. Where it is possible, suppliers and distributors might be expected to negotiate for situation (3). In that case, the supply market will continue to be monopolized, and the suppliers and distributors will share the monopoly profits there.

Alternative merger Guidelines promulgated by the National Association of Attorneys General in 1987 and revised in 1992 have responded to some of these concerns.⁹ These Guidelines, which state the criteria that state attorneys general will use to challenge mergers

⁸ The fact that situation (4) is better for the distributor than situation (3) derives from the fact that any single monopolist in a distribution chain can reap the maximum benefits of monopoly in that chain.

⁹ NAAG Horizontal Merger Guidelines (1987), 4 Trade Reg. Rep. (CCH) ¶ 13,405; Revised Horizontal Merger Guidelines (1993), reprinted in 64 Antitrust & Trade Reg. Rep. (BNA) #1608, (Special Supp., Apr. 1, 1993).

affecting their state,¹⁰ observe that powerful buyers cannot be relied upon to discipline collusion if they "find it more profitable to preserve the monopoly in the primary market * * * than to force competition there." Further, "[t]his is most likely when both buyer and seller market levels are highly concentrated and each side has significant power to force the other side to behave competitively." In that case "forbearance on both sides, which results in preservation of the monopoly and sharing of its profits, is a more profitable result than aggressive behavior that will eliminate monopoly profits at both levels."¹¹

Adequacy of Irreplaceable Raw Materials

Many scarce natural resources such as coal, oil, and copper are in a practical sense irreplaceable, and often most of the known reserves that can be profitably produced at current market prices are already owned by other firms. If a firm is running out of such reserves its market share of current production may overstate its position as a continuing force in the market. For example, in the *General Dynamics* case,¹² the Supreme Court found that the current market shares of merging coal producers exaggerated their market power when their reserves were depleted and they could not acquire more.

Some caution is in order, however. A firm with only 1% of the world's sand could probably produce 100% of the world's silicone computer chips from now until eternity. Any blanket rule that a firm's irreplaceable reserves rather than its current output be used in estimating market share would cut far too broadly. The court should find initially that a firm's reserve holdings are irreplaceable and depleted, *and* that as a result its output in the relevant market (here, silicone computer chips) will decline substantially in only a few years.

Excess Capacity

Excess capacity occurs when firms' current output is less than the optimal output that their plants are designed to produce. To say that a firm has excess capacity thus entails that the firm could increase its output at per unit costs no higher than (and perhaps lower than) its current costs. Excess capacity held by a firm's active competitors will confine the firm's ability to increase price. As soon as it does so, the competitors will respond with an output increase.

One way to address this problem is to define market share in terms of the capacity held by rivals, rather than their current output. Although that may be the theoretically best approach to the existence of excess capacity, relevant capacity is often harder to measure than output or sales.¹³ Another way is to define markets in the conventional way (on the basis of units of output

¹⁰ When states Attorneys General challenge mergers they are treated as private plaintiffs; however, they have the power to act as *parens patriae* in behalf of consumers within their states. See *California v. American Stores Co.*, 495 U.S. 271, 110 S. Ct. 1853 (1990).

¹¹ 1992 NAAG Horizontal Merger Guidelines § 5.4 n. 56.

¹² *United States v. General Dynamics Corp.*, 415 U.S. 486, 94 S. Ct. 1186 (1974). See 4A Antitrust Law ¶ 962 (3d ed. 2009).

¹³ See Hovenkamp, Federal Antitrust Policy, § 3.7b.

or dollars of revenue) but then consider market wide excess capacity as a mitigating factor to be weighed in favor of the merger.

The entire problem is further complicated by the fact that excess capacity may serve another, not so propitious function. Firms who are engaged in express or tacit collusion may carry excess capacity in order to punish cartel cheaters. One of the most effective of such punishments is temporary bursts of selling at the competitive price.¹⁴ However, in order to support such punishment the cartel members may have to carry excess capacity sufficient to make the threat that cheaters will be disciplined credible. In that case, the excess capacity may really be a collusion facilitating device. Likewise, market-wide excess capacity may be a signal that the market is already subject to collusion, and that the firms have successfully reduced their output below pre-cartel levels. Approving a merger would simply make the cartel more robust.¹⁵

How does one tell whether a particular instance of excess capacity tends to mitigate in favor of the merger, because it makes disciplining of post-merger price increases more likely; or tends to mitigate against the merger because it is a sign of collusion? In some cases the decision maker will not be able to tell, and then the best solution is probably not to count excess capacity one way or the other. In other cases, collusion will leave telltale signs: facilitating devices, rigid market shares, apparent price leadership or lockstep pricing, and so on.¹⁶ In the presence of such evidence, excess capacity should never be regarded as a mitigating factor.

By contrast, if the excess capacity is held by firms that are clearly aggressive, it can be used to limit collusion. In that case the central question is whether the firm being acquired is the maverick, or whether it is a third party. In the former case, the merger is more likely to be anticompetitive because it will dispose of a feisty rival who has the capacity to frustrate collusion. In the latter case, the continued presence of the maverick makes successful collusion less likely.¹⁷ The 2010 Merger Guidelines note the possibility that one firm may acquire another firm with excess capacity in order to make its “output suppression strategy profitable.”¹⁸

Marketing and Sales Methods

Some pricing and sales practices are more conducive to price leadership or price fixing than others. The 1982/1984 Merger Guidelines were criticized for considering all markets to be “auction” markets, in which every seller competes for every buyer and the buyers have complete,

¹⁴ See Hovenkamp, Federal Antitrust Policy, § 4.1.

¹⁵ See *FTC v. Elders Grain, Inc.*, 868 F.2d 901, 905–906 (7th Cir. 1989), which noted the possibility.

¹⁶ See Hovenkamp, Federal Antitrust Policy, §§ 4.4–4.6.

¹⁷ Technically, a maverick firm is one whose profit-maximizing rate of output is higher than any share that other firms would tolerate in a cartel or oligopoly equilibrium. As a result, the mere existence of the firm in the given situation undermines the cartel or oligopoly outcome. Mavericks are more likely to exist when there are significant differences among firms in a market—for example, they have widely differing costs, capacities or scale economies, and thus maximize their profits at different output levels.

¹⁸ 2010 Horizontal Merger Guidelines §6.3, available at <http://www.justice.gov/atr/public/guidelines/hmg-2010.html>.

easily available information about the offerings of competing sellers.¹⁹

The amount of competition in a market varies with the way price information flows. A Chicago physician may have a great deal of market power in the Chicago market, even though there are several competitors in her specialty. Often people in need of emergency surgery find comparison shopping very expensive. Since most customers are likely to enter this market only once or at least infrequently, the seller does not need to worry about pricing her product low enough to keep the buyer.

At the other extreme is a market like the New York Stock Exchange or the Chicago Board of Trade, where every buyer has virtually complete information about the offering price of every seller, and vice-versa. If the current price of IBM stock is 130, a seller who offers his shares at 140 will not make the sale. Of course, in some cases the use of a particular pricing or sales method, or of price or output information exchanges, may be so offensive that it constitutes a violation of § 1 of the Sherman Act.²⁰ In other cases, the use of such practices may be sufficiently suspicious that it justifies condemning the merger even where the ordinary structural thresholds are not satisfied.

History of Collusion or Facilitating Practices

In predicting the likelihood of collusion in a market, one cannot ignore history.²¹ The 2010 Merger Guidelines state that the Agencies will “presume that market conditions are conducive to coordinated interaction if firms representing a substantial share ... appear to have previously engaged in express collusion ... unless competitive conditions ... have since changed significantly.”²² An occasional court has also suggested that a history of attempts at collusion weigh against approval of a merger.²³

Of course, elaborate efforts to fix prices may also be evidence that more tacit kinds of collusion or oligopoly behavior have not been successful. By contrast, the absence of evidence of collusion may suggest only that collusion by express agreement is unnecessary: the sellers have managed quite successfully to coordinate prices without express collusion. This suggests that the absence of historical evidence of collusion should generally be ignored. Further, since express collusion is just as much a merger policy concern as oligopoly, and since a reduction in the number of players makes collusion more likely to occur, previous attempts at collusion should always be regarded as an aggravating factor.

¹⁹ Robert B. Harris & Thomas M. Jorde, *Market Definition in the Merger Guidelines: Implications for Antitrust Enforcement*, 71 *Calif.L.Rev.* 464, 476–79 (1983).

²⁰ See Hovenkamp, *Federal Antitrust Policy*, §§ 4.4–4.5.

²¹ See *id.*, § 12.8, which discusses the relevance of observed anticompetitive consequences.

²² 2010 Guidelines, § 7.2. See Kevin Arquit, *Perspectives on the 1992 U.S. Government Horizontal Merger Guidelines*, 61 *Antitrust L.J.* 121, 131–133 (1992) (focusing on 1992 Guidelines).

²³ For example, *FTC v. Elders Grain, Inc.*, 868 F.2d 901, 906 (7th Cir. 1989) (merger which reduces number of players in a market historically prone to collusion is unlawful).

"Trends" Towards Concentration

In *Brown Shoe*²⁴ and *Von's Grocery*,²⁵ the Supreme Court cited an industry-wide trend toward concentration as a rationale for condemning the mergers. If the court approved these mergers, it reasoned, it would be forced to approve other similar mergers in the future. This "domino theory" has been relied on by courts to condemn many mergers.

The significance for merger policy of a "trend" toward concentration in the relevant market has been hotly debated.²⁶ Both the 1992 and the current 2010 Horizontal Merger Guidelines ignore it. What does a "trend" toward concentration indicate? Most of the time it indicates that larger firms have developed economies of scale or scope. Suppose, for example, that a market contains 50 firms, each with 2% of the market and having costs of \$4.00 per unit. Two firms merge and achieve economies that reduce the costs of the post-merger firm to \$3.60. What will happen next? The larger firm with the lower costs is likely to expand output. The smaller competitors will lose business unless they can achieve the economies themselves, and perhaps the quickest way is by merger. The industry will exhibit a "trend" toward concentration (and merger) until it reaches a new equilibrium in which all firms have either exploited the available economies or exited from the market.

Any rule that identifies such a trend toward concentration as justifying condemnation of mergers is probably calculated to protect small businesses at the expense of consumers. This almost certainly explains the Supreme Court's citation of a trend toward concentration in *Brown Shoe* and *Von's Grocery*. In his *Von's Grocery* dissent Justice Stewart criticized the majority for trying to use Clayton § 7 to "roll back the supermarket revolution."²⁷ Grocers were merging because multi-store companies were achieving economies in buying, advertising and other forms of coordination that were generally not available to smaller chains or individual stores.

The irony of using a "trend" toward concentration to condemn a merger under these circumstances is that the rule often damages the fortunes of the very small businesses it was designed to protect. If multi-store economies are substantial in the grocery business, firms will procure additional stores. If they cannot acquire existing stores they probably will build new ones of their own. The result will be that small operators will still have to face the more efficient

²⁴ *Brown Shoe Co. v. United States*, 370 U.S. 294, 346, 82 S. Ct. 1502, 1535 (1962).

²⁵ *United States v. Von's Grocery Co.*, 384 U.S. 270, 277, 86 S. Ct. 1478, 1482 (1966) ("Congress sought to preserve competition among many small businesses by arresting a trend toward concentration in its incipiency before that trend developed to the point that a market was left in the grip of a few big companies.")

²⁶ Supporting condemnation of mergers in markets exhibiting a trend toward concentration: Derek Bok, Section 7 of the Clayton Act and the Merging of Law and Economics, 74 Harv.L.Rev. 226, 310 (1960); opposing it: Robert H. Bork, *The Antitrust Paradox: A Policy at War With Itself* 205–206 (1978). Other literature is discussed in 4 Antitrust Law ¶ 932e (3d ed. 2009).

²⁷ 384 U.S. at 288, 86 S. Ct. at 1488: "[T]he [majority's] opinion is hardly more than a requiem for the so-called 'Mom and Pop' grocery stores * * * that are now economically and technologically obsolete in many parts of the country."

operation of their bigger competitors but will have no easy way of exiting the market when things go bad. The "trend" toward concentration that the Court cited should have been used to support, rather than condemn, the mergers at issue.

Aggressiveness of Acquired Firm

One thing structural indexes do very poorly is provide us with indicators of the competitiveness of particular firms in the market. Some firms are much more aggressive rivals than others, even if they are small. In amending the Clayton Act in 1950, Congress expressed a concern with mergers that eliminated a rival that was a "substantial factor in competition."²⁸ Judicial decisions have noted the aggressiveness of the acquired rival only infrequently. However, in the 1964 *Aluminum Co.* decision, the court noted that Rome Cable had been a particularly aggressive and innovative competitor, despite its small market share.²⁹ The enforcement agencies have incorporated these concerns in the 2010 Guidelines, which show particular concern with the acquisition of "maverick" firms that have a history of frustrating attempts at collusion.³⁰ Further, the Guidelines note, the Agencies will look closely at acquisitions of firms who are developing new technologies or business models that may be threatening to incumbents.³¹

²⁸ See H.R. Rep. No. 1191, 81st Cong., 1st Sess. 8 (1949).

²⁹ *United States v. Aluminum Co. of America (Rome Cable)*, 377 U.S. 271, 280–281, 84 S. Ct. 1283, 1289–1290 (1964) (" * * * Rome was an aggressive competitor. It was a pioneer in aluminum insulation and developed one of the most widely used insulated conductors. * * * Preservation of Rome, rather than its absorption by one of the giants, will keep it 'as an important competitive factor,' * * * ").

³⁰ See 2010 Guidelines, § 2.1.5, available at <http://www.justice.gov/atr/public/guidelines/hmg-2010.html>.

³¹ *Ibid.*

VIII. Observed Anticompetitive Behavior; Post-Acquisition Review

Price-fixing and tacit collusion are costly to a firm, because (1) the firm risks losing a customer if it refuses to make a price cut; and (2) the facilitating and enforcement devices are costly to develop and employ.¹ In a competitive market firms should be quite willing to deviate from the terms of sale offered by others, provided that the underlying sale remains profitable. A refusal to deviate suggests a perception that collusion or oligopoly behavior is worth its costs.

Suppose that a merger's competitive consequences are somewhat ambiguous on the standard market structure analysis, or even suggest that the merger is legal. Nonetheless, the firms in the market (either after the merger or both before and after) engage in a variety of practices that show that the market is not performing very competitively. For example, suppose that the firms follow a routine practice of publishing list prices once a month, all of which are nearly identical, and then refuse to negotiate discounts from those list prices, at least to certain classes of customers.² Or suppose that the firms have persistently followed a practice of price leadership under which a given firm announces the price increase and the others follow; or if the others fail to follow the leader quietly rescinds the increase. Should the merger be condemned on the basis of such evidence alone?

First of all, Clayton § 7's "may substantially lessen competition" language does not require a given market structure or a given set of proofs about market concentration, firm market share, entry barriers or anything else. Rather, it requires fairly convincing evidence of a likelihood that a merger will "lessen" competition. Market structure evidence is the surrogate for bad performance, not the other way around. Further, if any amount of collusion or collusion-like behavior is occurring, a horizontal merger tends to make that behavior more successful. Alternatively, the merger itself may bring the behavior into existence. In both these cases the merger has lessened competition.³

One good sign that a market is not performing competitively is the systematic willingness of sellers to engage in costly nonprice competition, coupled with a general unwillingness to reduce the price. Such behavior is costly, since the firm risks losing a sale; so it must have an explanation. In a competitive market, a seller should be indifferent as between offering a price cut of \$1.00 or the inclusion of a service that costs \$1.00, assuming there are no collateral costs. Under tacit or express collusion, however, the inclusion of the extra service may be a way of cheating on the cartel price without being detected.

¹ On facilitating devices, see Hovenkamp, *Federal Antitrust Policy*, § 4.4b.

² For example, *Chicago Bridge & Iron Co. N.V. v. F.T.C.*, 534 F.3d 410 (5th Cir. 2008) (relying on post-acquisition evidence of anticompetitive behavior); *United States v. Archer–Daniels–Midland Co.*, 781 F.Supp. 1400 (S.D.Iowa 1991) (sellers in post-merger market announced prices quarterly and did not deviate except to large buyers; however, the court concluded that the evidence failed to indicate sufficient coordination to warrant condemnation, in spite of high concentration. Court apparently overlooked that firms might give price discounts to large buyers, but oligopolistic prices to smaller ones.).

³ See 4 *Antitrust Law* ¶ 917 (3d ed. 2009).

Another sign of failure of competition is the existence of multiple pricing regimes.⁴ If a market is competitive, prices tend to hover around marginal cost, or a little above average variable costs. They change in response to cost changes, which are generally gradual, or else when there are temporary dislocations in the market, such as temporary shortages or surpluses in relation to demand. By contrast, in an oligopoly prices are maintained "artificially" at a higher than competitive level. At least in a cooperative oligopoly, this maintenance depends on certain assumptions about what rivals will do. But even in non-cooperative oligopolies, firms make assumptions about rivals' responses and set their own prices accordingly.⁵

Oligopolistic firms seldom have perfect information about what motivates the pricing decisions of others. In general, a good strategy in a cartel or oligopoly that faces cheating by one member is to cut prices themselves. Such a price cut may be costly to the cartel members, but it is also costly to the cheater. As a result, the assurance of retaliatory price cutting tends to make cheating unprofitable.⁶ In order for this threat to be credible, the intending cheater must perceive a high likelihood that other firms will immediately retaliate in response to any price cut. How can the other cartel members achieve this high likelihood if they find it difficult to determine whether another firm's price cut is the result of depressed market conditions or of cheating?⁷ The answer is that the firm learns from experience that other firms will shoot first and ask questions later. Indeed, the price cut is very likely the optimal response to *both* a depressed market and cheating, which makes it a particularly robust strategy. Further, the price cut does not need to be predatory, and this tends to make it more credible. A mere cut to the competitive level is quite costly to a firm that cheats once or twice and then pays by earning only competitive profits for an indefinite period of time. To be sure, retaliatory price cutting by the non-cheaters seems costly—but the important point is that it is less costly than attempting to maintain the price.

In an oligopoly where the firms do not have perfect information about each other, we would expect periods of oligopoly pricing to be punctuated by occasional price "wars," where prices are cut deeply for a short period of time. When the cheater finally begins raising its price again, other firms will follow the price up as well. Competitive markets do not have price "wars." Oligopolistic markets do. Distinguishing a qualifying price war from the ordinary changes in price that occur in competitive markets requires some econometric modelling, but it is by no means impossible and may often be quite easy.⁸ Evidence of multiple pricing regimes, such as

⁴ The term is from Jonathan B. Baker & Timothy F. Bresnahan, *Empirical Methods of Identifying and Measuring Market Power*, 61 *Antitrust L. J.* 3, 13 (1992).

⁵ On the difference between cooperative and non-cooperative oligopoly, see Hovenkamp, *Federal Antitrust Policy*, § 4.2.

⁶ *Id.*, § 4.1a3.

⁷ Cheating would typically result in higher output, while price reductions reflecting a depressed market would not. But one oligopolist may not easily determine the output of others.

⁸ See Jonathan B. Baker & Timothy Bresnahan, *Empirical Methods*, note 4 at 13–15; Robert H. Porter, *On the Incidence and Duration of Price Wars*, 33 *J. Indus. Econ.* 415 (1985); Jonathan B. Baker, *Identifying Cartel Policing Under Uncertainty: the U.S. Steel Industry 1933–1939*, 32 *J. L. & Econ.* S47 (1989).

periodic price wars, should raise a presumption that a further reduction in the number of effective players in this market is anticompetitive.⁹

Observed noncompetitive consequences are particularly important to the evaluation of mergers in markets that may be defined as too large. The Merger Guidelines may sometimes lead policy makers to commit the "*Cellophane*" fallacy by focusing too closely on high cross elasticity of demand at current market prices, and not taking into account that if a market is already subject to collusion, cross elasticity of demand will be high. The 1992 Guidelines had suggested that if there is evidence that collusion or collusion-like behavior is already occurring, the Agency will attempt to determine what the price would have been absent the collusion, and compute from that point.¹⁰ But there seems to be a better solution: if there is evidence of such behavior, the merger should be condemned without further difficult inquiries into what the competitive price might have been and what would be the cross-elasticity of demand at that price. The 2010 Guidelines state that the Agencies will "presume that market conditions are conducive to coordinated interaction" if the firms have a history of express collusion.¹¹

Suppose, for example, that on the basis of similar technology and geological proximity the tribunal defines a provisional market as including the output of firms A, B, C, D and E. At current prices the demand of these firms seems highly cross-elastic with the output of firms X, Y and Z. If the firms in the first group increased price further, they would lose too many sales. But suppose that the evidence also suggests one of the following: (1) in the past A, B, C, D & E have fixed prices; or (2) A, B, C, D & E follow a practice of publishing quarterly price lists and seldom deviating from them, and their prices seem to move in lockstep fashion, except for possible discounts to a few large customers. Under the Guidelines approach, the Agency would then try to determine what the competitive price would be for the output of A, B, C, D & E. Then it would determine whether cross-elasticity of demand with the output of X, Y and Z is also high at that lower price. If it is not, then A, B, C, D and E would define a relevant market.

The better approach is to ignore the second step. Once we know that the firms in the provisional market are behaving noncompetitively vis-a-vis one another, we can assume that the refusal to compete is worth its costs. We have already defined a relevant market, and it includes only A, B, C, D & E. Further, any merger among them will exacerbate the anticompetitive performance.

Observed behavior is particularly relevant to the analysis of mergers after they have occurred. Unlike earlier Guidelines, the 2010 Horizontal Merger Guidelines pay considerable attention to the review and analysis of already consummated mergers, making clear that the

⁹ See generally Alexis Jacquemin & Margaret E. Slade, *Cartels, Collusion, and Horizontal Merger* 416–473, 1 *Handbook of Industrial Organization* (Richard Schmalensee & Robert Willig eds. 1989).

¹⁰ 1992 Horizontal Merger Guidelines, § 1.11. See also *United States v. Oracle Corp.*, 331 F.Supp.2d 1098, 1121–1122 (N.D.Cal. 2004) (discussing *Cellophane* fallacy in merger analysis).

¹¹ 2010 Horizontal Merger Guidelines, § 7.2.

Government will challenge them in appropriate cases.¹² “Substantial weight” will be given to evidence of post-merger price increases. However, the Guidelines also note that the absence of such increases is not decisive, for the parties may be aware of the possibility of post-merger review and are moderating their behavior accordingly.¹³

¹² *Id.*, §2.1.1. See, e.g., *Chicago Bridge & Iron Co. N.V. v. F.T.C.*, 534 F.3d 410 (5th Cir. 2008).

¹³ *Id.* at §2.1.1.