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MINI-ROUNDTABLE ON OLIGOPOLY

-- Note by the US Department of Justice and the US Federal Trade Commission --

This note is submitted by the US Delegation to the Committee on Competition Law and Policy FOR DISCUSSION at its forthcoming meeting on 6-7 May 1999.

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OVERVIEW OF THE APPLICATION OF THE US ANTITRUST LAWS TO OLIGOPOLY BEHAVIOR

I. Introduction and Background

1. Since the passage of the Sherman Act in 1890 the United States has sought to minimize the welfare-reducing effects of oligopoly behavior. While early enforcement efforts under the Act focused on eradicating the formal cartels that were commonplace in American industry in the late 19th and early 20th centuries, enforcement officials have devoted considerable resources during the past 50 years toward uncovering and eliminating more covert forms of anticompetitive coordination (both express and tacit) as well as toward analyzing the potential effects of mergers in concentrated industries. The passage of the Federal Trade Commission and Clayton Acts in 1914 added significant dimensions to the enforcement scheme.

2. Today, these three statutes (the Sherman, Clayton and FTC Acts) provide the basis for U.S. antitrust enforcement against oligopoly behavior. Section 1 of the Sherman Act prohibits agreements that restrain trade, and thus can be used to attack active collusion, whether tacit or express.[1] Section 2 of the Sherman Act prevents, among other things, conspiracies to monopolize. Section 7 of the Clayton Act forbids mergers or acquisitions that, among other things, substantially increase the risk of anticompetitive coordination. Finally, section 5 of the FTC Act prohibits unfair methods of competition. Together, these statutes provide a comprehensive set of tools for dealing with the oligopoly problem.

A. The Oligopoly Problem

3. Whenever firms in a market are able to coordinate pricing and production activities, they can increase their collective profits and reduce consumer welfare by raising price and reducing output.[2] The more likely participating firms are to succeed in such an endeavor, the greater their incentive to attempt it. In oligopolistic markets the success of each firm's actions will depend, in part, on the direct responses of its rivals. Economic theory generally assumes that firms in an oligopoly recognize or perceive these interdependencies, leading to the potential for strategic coordination.

4. However, it is far from inevitable that oligopolists will price supracompetitively. While a collective incentive motivates collusion, strong private incentives will motivate firms to deviate from any coordinated scheme. Often an individual firm will find it profitable to undercut cooperative terms in order to expand its own sales. Faced with this scenario, the firm may well opt to deviate from, or "cheat" on, the collusive arrangement. This temptation to cheat is compounded by the realization that other participating firms may have similar incentives. If a firm holds to the collusive price while its rivals cheat, it will be substantially worse off than had it priced non-cooperatively.[3] Economists refer to this phenomenon as the "cartel problem" or "prisoners' dilemma."[4] It demonstrates that collusion is not inherently self-enforcing. Where the prospect of cheating is sufficiently strong, it will outweigh the incentive to cooperate in the first instance.

5. In a landmark article published in 1964, University of Chicago professor George Stigler demonstrated that firms seeking to collude, whether expressly or tacitly, must first be able to overcome the market uncertainties that give rise to the cartel problem.[5] Thus, they must be able to identify terms of coordination, detect deviation from those terms by individual participants, and punish deviators. This requires that cartel members have access to timely and reliable information about the behavior of all participants. Indeed, the quality of information available to a cartel is the most important factor affecting

its viability (*i.e.,* ability to overcome members' incentives to cheat) and strength (*i.e.,* ability to realize the full extent of members' collective market power).[6]

6. Collusion also may attract entry in response to profit opportunities. The colluding firms must either forestall entry, or convince entrants to abide by the cartel's output restrictions.

7. Firms' choices of *how* to collude will depend both on the anticipated severity of the cartel problem, and on the risk of antitrust scrutiny associated with different methods of collusion. This presents an *inherent tension*: effective maintenance of a cartel requires transparency of participants' actions, while effective shielding of actions from antitrust authorities requires opaqueness. Colluding firms must balance these two goals.

B. Collusion is More Than Oligopoly Pricing

8. Collusive schemes often take an informal structure, arising from a common understanding among competitors that falls short of an express contract. Such schemes need not necessarily be communicated directly among the participants, but may be tacit. However, the legal analysis of collusion relies on the existence of at least some form of actual agreement among the participants, *i.e.*, some concerted action that amounts to a "contract, combination or conspiracy" under traditional legal principles. Thus collusion, in the legal sense, is distinct from mere interdependent oligopoly behavior.

9. As noted above, oligopolists sell in a market with "perceived interdependencies." Each firm selects its profit-maximizing price based in part on the reaction it expects from rivals. This interdependence among sellers can, in certain circumstances, result in supracompetitive prices and reduced output even in the absence of an illegal agreement. The "interdependence theory" of oligopoly pricing can be summarized as follows:

10. In a competitive market with many sellers, the individual firm is too small to affect market price. It is generally unable to sell at a price above the market level and the effect of any decision by it to reduce its price will be too small to evoke significant reaction from competitors. By contrast, in an oligopoly a seller who substantially cuts price and expands output will have a direct, perceptible effect on the output of the remaining firms. Anticipating that its competitors will react to such a price reduction by matching it (thus nullifying the gains from employing such a strategy), the oligopolist is less likely to initiate a price cut in the first place. In short, oligopolists base pricing decisions in part on the anticipated responses of their rivals. As a result, vigorous price competition is avoided. This effect may be achieved without any illegal agreement among sellers.[7]

11. Professor Stigler's analysis initially led some scholars to reject the interdependence theory of oligopoly behavior. These scholars recognized that interdependent pricing is nonetheless "coordinated," in that it requires the identification of, and continued adherence to, a supracompetitive price by multiple firms. Moreover, as with other forms of coordination, private incentives to deviate from the interdependent price must still be overcome by a credible threat that competitors will monitor deviation and react to (or punish) it by reducing their prices to competitive levels.[8] Thus, interdependent pricing has been called merely a "special case in the general economic theory of collusive pricing."[9] In the absence of some mechanism by which to monitor and punish deviation, it was believed that the incentives to cheat identified by Stigler would typically overwhelm the potential for coordination.

12. Building upon professor Stigler's early analysis, modern economic theorists recognize that where firms interact with one another repeatedly over time incentives may change such that the interdependencies among them can lead to supracompetitive pricing even in the absence of an illegal agreement.[10] However, they also note that the ultimate success of any form of coordination (whether the result of concerted action

or not) will often require the adoption of "facilitating devices" that make it easier to detect and punish deviations from the coordinated terms.[11] Such facilitating devices may themselves be the subject of an agreement among the participants, but need not necessarily be so.

II. U.S. Antitrust Laws as a System to Avert Consumer Welfare Loss

13. The U.S. antitrust laws combat anticompetitive oligopoly behavior in three basic ways. The Sherman Act prohibits horizontal agreements among competitors that restrain trade unreasonably. Section 7 of the Clayton Act prevents mergers or acquisitions whose effect may be to create or strengthen oligopoly structures in markets that are conducive to coordination. And section 5 of the FTC Act prohibits practices that tend to facilitate collusion. Combined, these laws provide a unified approach to dealing with the oligopoly problem.

14. It is important to note that U.S. law does not proscribe supracompetitive oligopoly pricing in the absence of an agreement (*i.e*., concerted action) among sellers. Treating such behavior as illegal would demand that competitors act irrationally by ignoring their perceived interdependencies, *i.e.*, that rivals should price as if they were in a perfectly competitive market.[12] It would also mandate unworkable remedies. The root source of the supra-competitive pricing is the oligopoly structure rather than firms' rational behavior. The only potential remedies would be direct price regulation or a structural deconcentration policy. Both remedies impose costs. Price regulation substitutes the regulator's judgment for the mechanisms of the free market, inevitably leading to inefficient outcomes. As a remedy for supracompetitive oligopoly pricing in the absence of an agreement, structural deconcentration is undesirable because it imposes substantial costs on society, including those from the loss in efficiencies created by economies of scale and scope, the expenses of litigation incurred to force the dissolution of large enterprises, and the disruption of economic activities in the deconcentrated industry.[13] In addition, deconcentration creates explicit disincentives for moderate and larger firms to continue to invest and expand, for fear of triggering antitrust scrutiny simply by dint of their size.

15. As a result, U.S. courts and enforcement officials are often faced with the difficult task of determining when "coordinated" pricing is the result of an actionable agreement and when it results from mere interdependent behavior.

A. Analysis of Tacit Collusion Under Section 1 of the Sherman Act

16. Section 1 of the Sherman Act, 15 U.S.C. §1, prohibits "contract[s], combination[s] . . . or conspirac[ies]," that unreasonably restrain trade. A plaintiff in a section 1 action[14] must establish the existence of an agreement between two or more parties from which unreasonable anticompetitive effects result. Naked horizontal agreements to fix prices, restrict output, or allocate customers or markets have long been deemed to be *per se* illegal under the Act.[15] Other agreements are judged by a "rule of reason," under which their anticompetitive effects are weighed against any procompetitive benefits for which the agreements are reasonably necessary.[16]

17. Section 1 collusion cases typically involve one of five scenarios: 1) defendants have allegedly entered into express collusive agreements on price or output about which direct evidence is available; 2) defendants have allegedly entered into express (but covert) agreements about which no direct evidence is available; 3) defendants have allegedly entered into tacit agreements about which only circumstantial evidence is available;[17] 4) defendants have coordinated their actions simply by observing and anticipating the conduct of their rivals;[18] or 5) defendants have allegedly agreed to adopt concerted practices that facilitate anticompetitive coordination.

18. In the first scenario, prosecution is relatively straightforward. Direct evidence, usually in the form of documents and/or testimony, proves that competitors agreed to eliminate competition in some meaningful sense, and the case becomes largely a matter of establishing appropriate relief and/or imposing appropriate punishment. The remaining scenarios present more difficult problems of analysis and proof. In each, the plaintiff must establish that an actionable agreement exists. While scenarios 2, 3 and 5 above can pose difficult issues of proof, the fourth is likely to be unactionable as a matter of law.

19. Courts recognize that "[o]nly rarely will there be direct evidence of an express agreement,"[19] and are willing to infer actionable collusion under section 1 from circumstantial evidence that the defendants arrived at and implemented some form of tacit understanding.[20] However, more than mere "conscious parallelism" or "interdependent behavior" must be established before an agreement will be inferred.[21] Plaintiffs must also be able to provide evidence that "'tends to exclude the possibility' that the alleged conspirators acted independently. . . . [I]n other words, [plaintiffs] must show that the inference of conspiracy is reasonable in light of the competing inferences of independent action or collusive action that could not have harmed [plaintiffs.]"[22]

20. Typically, to infer an agreement, plaintiffs must prove the existence of parallel conduct along with certain "plus factors" which tend to show that the conduct was the product of an anticompetitive scheme. The cases usually frame the question as one of whether the plaintiff provided sufficient evidence to allow a reasonable jury to infer an agreement. Traditional plus factors include evidence that defendants' actions were against their unilateral self-interest, proof of direct communication between rivals, evidence of opportunities to collude, evidence of anticompetitive intent on the part of the defendants, and lack of a legitimate business justification for defendants' practices.[23]

21. In part because of the inherent difficulties associated with circumstantial evidence, tacit collusion can be extremely difficult to prove.[24] Although there is no absolute hierarchy of evidence for collusion cases, some generalizations can be made about the persuasiveness of traditional plus factors.[25] In addition to evidence of parallel conduct, direct evidence of a conspiracy (both documents and testimony) will generally be most persuasive. This evidence can conclusively establish the existence of an agreement. Evidence of practices by the defendants (such as information exchanges) that facilitate collusion can also be effective, particularly where the practices in question serve no important legitimate business purpose. Indirect evidence that tends to prove that each defendant's conduct would not be in its own individual self-interest in the absence of an agreement can also be persuasive. Courts sometimes refer to this as evidence that the defendant's conduct lacked independent business justification. Next is evidence that the defendants' stated reasons for their conduct were merely pretextual. Finally, and least persuasive, is evidence that the defendants were exposed to opportunities to collude.

22. In the wake of the U.S. Supreme Court's admonition that inferences of horizontal conspiracies must make "economic sense,"[26] courts are also increasingly likely to turn to evidence bearing on the conduciveness of the relevant market to collusion. Facts which tend to demonstrate that the defendants would find it feasible and profitable to reach terms of coordination, monitor compliance with those terms, and punish deviation can help persuade a court to infer collusion, while facts tending to show that a coordinated scheme is not economically plausible under current market conditions will militate against such an inference.[27] Advances in economic analysis may also ultimately aid the determination of whether collusion has occurred.[28]

23. As noted above, agreements to engage in practices that "facilitate" anticompetitive coordination by reducing uncertainty or diminishing incentives to deviate from coordinated terms are also subject to challenge under section 1.[29] Typically, challenges occur when firms in a concentrated industry agree to exchange competitively sensitive information such as price data.[30] Such agreements are generally reviewed under the rule of reason, and their legality is determined by assessing whether plausible

procompetitive business justifications exist for their use, and whether they are likely to result in substantial harm to competition.[31]

B. Analysis of "Conspiracies to Monopolize" Under Section 2 of the Sherman Act

24. Section 2 of the Sherman Act prohibits, *inter alia*, combinations or conspiracies "to monopolize any part of ... trade or commerce." 15 U.S.C. §2. To prove a section 2 conspiracy violation, the plaintiff must establish (1) the existence of a combination or conspiracy, (2) some overt act in furtherance of the conspiracy, and (3) specific intent to monopolize.[32] Although the elements of a section 2 conspiracy claim are distinct from those under section 1, similar analytical principles apply.

25. The most important aspect of section 2 conspiracy cases is typically the existence of an agreement to engage in objectionable conduct. As with section 1, the agreement may be established through either direct or circumstantial evidence.[33] Inferences of conspiracy under section 2 are governed by the same general principles applied in section 1 cases.[34] Indeed, collusion cases filed against oligopolists often contain counts alleging violations of both section 1 and section 2.

26. Although the performance of an overt act in furtherance of the conspiracy is a required element under section 2, the act need not be illegal in and of itself to meet the requirement. Rather, it can be any act in furtherance of the conspiracy.[35] In addition, the requirement that defendants possess a specific intent to monopolize can be proved by direct evidence of actual intent, or can be inferred from conduct.[36] However, a number of courts have refused to infer specific intent in the absence of a showing that defendants were engaged in anticompetitive exclusionary conduct having no legitimate business justification.[37] Commentators have argued that section 2 conspiracy claims are analytically redundant of section 1 claims.[38] While not all section 1 claims amount to a conspiracy to monopolize, every combination or conspiracy that offends section 2 can easily be held to be an unreasonable restraint of trade under section 1.[39] In *NYNEX Corp. v. Discon, Inc.*,[40] the Supreme Court appeared to affirm this reasoning, suggesting that unless a plaintiff could prevail on its section 1 claim it could not establish a conspiracy to monopolize.[41] Thus, as one commentator has noted, "[t]he Supreme Court's decision in *NYNEX* . . . may provide substantial guidance in reconciling Section 2 conspiracy law with cases decided under Section 1."[42]

C. Analysis of Coordinated Effects Mergers Under Section 7 of the Clayton Act

27. Section 7 of the Clayton Act, 15 U.S.C. §18, prohibits mergers or acquisitions "where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly." It has long been settled that the incipiency nature of section 7's language affords courts the ability to block acquisitions that substantially increase the risk of harm to competition, even before such harm has occurred.[43] Thus, section 7 "necessarily requires a prediction of the [challenged] merger's impact on competition, present and future,"[44] and "deals in probabilities, not certainties."[45]

28. The focus of section 7 inquiry is whether a proposed transaction creates an "appreciable danger"[46] of anticompetitive effects, regardless of whether those effects result from post-merger conduct that would be actionable under section 1 of the Sherman Act.[47] Accordingly, a merger that would substantially enhance the ability of firms in the post-merger market to engage in oligopoly pricing, conduct that by itself is outside the scope of the Sherman Act, may be prohibited under section 7.[48]

29. In thinking about whether a proposed merger or acquisition creates a substantial risk of coordination, it may be helpful to understand how market characteristics can affect the likelihood and form

of coordinated interaction. Imagine a continuum (depicted below) on which at one end market characteristics make coordination extremely difficult, and thus unlikely. On the other end, the market is perfectly conducive to coordination, such that firms could be expected to act interdependently.

Mkt. Perfectly Conducive to Coordination	Mkt. Somewhat Conducive to Coordination	Mkt. Somewhat Unfavorable to Coordination	Mkt. Highly Unfavorable to Coordination
No Agreement Necessary/ Interdependent Behavior Expected	Some Agreement Necessary/Tacit Collusion Workable	Extensive Agreement Required/ Express Collusion Needed/Coordination Increasingly Unlikely	

30. In general, as markets become more concentrated, coordination becomes easier and thus more likely. A merger in a market that is already susceptible to coordination, or which makes a market substantially more susceptible, is likely to violate section 7.[49] However, concentration alone does not necessarily make a market conducive to coordination.[50] Whether a market is predisposed to such conduct depends upon the interaction of many factors affecting the ability and incentive of firms in the market to coordinate, detect deviations, and punish deviators.

31. Modern courts increasingly recognize that concentration is but one factor, albeit an important one, in a competitive effects analysis. Following the approach outlined in the federal government's 1992 Horizontal Merger Guidelines,[51] courts (and enforcement agencies) typically try to determine whether the post-merger market is one that is susceptible to coordination and/or whether the merger substantially increases the risk of such behavior. Accordingly, plaintiffs in a section 7 action must be prepared to articulate a sound coordinated effects theory and to support that theory with evidence. This requires a thorough analysis of market concentration, susceptibility of the market to coordination, and the likelihood of entry in response to oligopolistic conditions.

32. Persuasive evidence might include: a) evidence of an already oligopolistic market structure, including instances of interdependence or "less aggressive" competition; b) evidence of prior conduct or ongoing price-fixing or other collusive conduct; or c) evidence that the proposed acquisition would remove a substantial impediment to coordination, such as by eliminating a maverick firm.[52] Among these categories, evidence of prior or current coordination is potentially the most persuasive.

33. In sum, successful analysis (and pursuit) of coordinated effects merger cases will increasingly depend on the ability to integrate factual evidence with economic theory.

D. The Treatment of Facilitating Practices Under Section 5 of the FTC Act

34. Facilitating practices may be described as activities that tend to promote interdependent behavior among competitors by reducing their uncertainty as to each other's future actions, or diminishing their incentives to deviate from a coordinated strategy.[53] They tend to arise in oligopolistic markets that are generally susceptible to collusion but in which the market participants face some obstacle.[54] For example, collusion may be frustrated by lack of public dissemination of price information on a regular and trustworthy basis or by significant differences in transportation costs among competitors. Wide use of

advance announcements of price increases and a basing point freight system can eliminate the obstacles to collusion by enabling competing sellers to detect cheating from a coordinated price.

35. Most facilitating practices can serve procompetitive, as well as anticompetitive purposes. Advance announcements of price increases, for example, can benefit customers in their business planning by permitting them to place new orders before price increases are implemented or simply plan their business activity more coherently. But they also alert competitors to a seller's future price and allow them to counter with their own price announcements that may lead to a tacit negotiating process culminating in a higher market price. When facilitating practices lack any countervailing efficiency justification, courts have found them unlawful given the substantial likelihood of their increasing tacit collusion among oligopolists.[55]

36. As noted above, facilitating practices can be the product of agreement and, if so, are actionable under the Sherman Act. But where no more can be shown than unilateral, parallel adoption of a facilitating practice by members of an oligopoly, the unique scope of section 5 of the FTC Act can be used to prohibit them as an "unfair method of competition" upon an appropriate showing. In *E. I. du Pont de Nemours & Co. v. FTC ("Ethyl")* the Second Circuit Court of Appeals articulated the legal standard of liability under section 5 for unilateral conduct in an oligopolistic industry -- "absent a tacit agreement, at least some indicia of oppressiveness must exist such as (1) evidence of anticompetitive intent or purpose on the part of the producer charged, or (2) the absence of an independent legitimate business reason for its conduct."[56] The Court overturned the Commission's finding of liability under section 5, noting that there was no evidence the facilitating practices -- uniform delivered pricing, most-favored buyer contracts, and advance notice of price increases -- were adopted for other than legitimate business reasons and, in fact, were first adopted by Ethyl Corporation when it was the only producer in the market for lead-based gasoline antiknock compounds. The evidence also showed that customers favored the use of the challenged practices.

37. Until 1992, the facilitating practices theory saw little application. In June, 1992, the Commission, relying on the judicial standard enunciated in the *Ethyl* case, filed federal court actions against the three leading manufacturers in the highly-concentrated infant formula market. The complaints alleged a number of facilitating practices involving unilateral exchanges of information in connection with a government procurement bid.[57] Each of the complaints alleged that the respondent provided information to its competitors during the bidding process, "with anticompetitive intent and without an independent legitimate business reason" (the *Ethyl* standard), that provided assurances to competing bidders as to the company's bidding strategies for competitive bids, thereby reducing their uncertainty and resulting in substantially higher prices. Two of the defendants entered into consent agreements settling the charges.[58] In the case against the third, Abbott Laboratories, the federal district court found for the defendant. Relying on the *Ethyl* standard, the court found that Abbott's conduct represented reasonable and independent business reactions to inappropriate actions by the procurement authority, the alleged collusion of its competitors, who settled the FTC charges, and inaction by the responsible federal agency.

38. In recent years, the FTC has entered into several consent agreements in cases alleging that an invitation to collude violated section 5 of the FTC Act. Under this theory, solicitations to engage in anticompetitive conduct such as price fixing or market division, under some circumstances, may be unlawful as an unfair method of competition, even in the absence of a showing that a consummated agreement would have created monopoly power, as alleged in the *American Airlines* case.[59] Invitations to collude can facilitate collusion in oligopolistic markets but proving such a market structure is not a required element of this section 5 violation.[60] Invitations to collude may be explicit or implicit.[61] In *A.E. Clevite, Inc.,* the Commission's complaint alleged that the general manager of the respondent's bearings division advised a rival company's official that the rival's prices for locomotive engine bearings were lower than the respondents' and as a result were "ruining the marketplace." The respondent subsequently

faxed its U.S. aftermarket price lists to the competitor. While the complaint alleged that the combined market shares of the two manufacturers exceeded 95 percent, it did not allege that a monopoly would have been achieved upon acceptance of the solicitation.

39. The Commission's most recent case, *Stone Container Corporation,* involved an innovative course of conduct that implicitly invited competitors to join a coordinated price increase. Following a failed attempt in 1993 to achieve a price increase for liner board, senior officers of Stone Container allegedly surveyed its competitors by telephone to determine the dimensions of their inventory, and subsequently contacted senior officers of its competitors to communicate its intentions to suspend production at five of its nine mills, to draw down its inventory level and simultaneously to purchase a significant volume of its competitors' excess inventory, and its belief that these actions would support a price increase. The complaint identifies additional factors that support the characterization as an invitation to collude: the mill downtime and liner board purchases were outside of the ordinary course of business; the high-level communications initiated by Stone Container were likewise extraordinary; and the entire scheme was undertaken without an independent legitimate business justification.

40. Because all Commission cases brought under this theory have been settled, there is no written opinion stating the Commission's analytical basis for the use of section 5 in these cases, nor has the Commission's theory been tested in court. However, Commission officials have offered possible theories of competitive harm, all of which are based on the notion that firms do not usually engage in irrational acts. One theory is that an invitation to collude is a special type of facilitating practice that can facilitate tacit collusion in an oligopolistic market by signaling the solicitor's intentions for future pricing or output.[62] Other theories do not depend on an oligopolistic market structure.[63]

III. Conclusion

41. The three principal U.S. antitrust laws combine to provide a comprehensive system of prohibitions against anticompetitive coordinated behavior.

42. Sections 1 and 2 of the Sherman Act proscribe collusive agreements among competitors, but do not reach mere interdependent pricing. Accordingly, courts and antitrust enforcers often must undertake the difficult task of determining whether an agreement has actually occurred. Direct proof is rare and inferences must often be drawn from circumstantial evidence.

43. Section 7 of the Clayton Act attempts to prevent problems associated with oligopolies by prohibiting, among other things, mergers which significantly increase the likelihood for coordinated effects (including both collusion and oligopoly pricing). Recognizing that not all concentrated markets lead to anticompetitive coordination, the focus in these cases often centers on determining whether the relevant market is conducive to such effects.

44. Section 5 of the FTC Act prohibits practices that facilitate collusion, and thus might be used in instances where neither the Sherman Act nor Clayton Act apply.

45. As the theoretical understanding of oligopolies evolves, courts and enforcement officials are increasingly apt to employ economic analysis to resolve questions about the legality of specific behavior.

NOTES

1. The term "collusion," as used herein, refers to horizontal agreements on price, output, or allocation of customers or markets of the type commonly found to be *per se* illegal under the Sherman Act.

2. *See, e.g.*, Jeffrey M. Perloff & Klaas T. van t'Veld, Carlton & Perloff, Modern Industrial Organization 175 (2d ed. 1994).

3. George Stigler, *A Theory of Oligopoly*, 72 J. Pol. Econ. 44 (1964).

4. *See, e.g.*, Jonathan B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 39 Antitrust Bull. 143, 154 n.20 (1993).

5. George Stigler, *A Theory of Oligopoly*, 72 J. Pol. Econ. 44 (1964). For a discussion of the effect of Stigler's article on subsequent analysis of oligopoly behavior, *see* Jonathan B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 39 Antitrust Bull. 143, 150-57 (1993); Willard K. Tom, *Game Theory In The Everyday Life Of The Antitrust Practitioner*, 5 Geo. Mason L. Rev. 457, 458-59 (1997).

6. Employing a "one-shot game" model, Stigler concluded that incentives to cheat are typically so strong that oligopolists would seldom deem coordination worthwhile. Modern theorists have used "repeat game" models (in which participants interact repeatedly over time) to demonstrate that, where market uncertainties can be overcome, the short-term incentive to cheat can be outweighed by the long-term benefits from cooperation. Jonathan B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 39 Antitrust Bull. 143, 153-69 (1993).

7. *See* Donald F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75 Harv. L. Rev. 655 (1962).

8. *See, e.g.*, Willard K. Tom, *Game Theory In The Everyday Life Of The Antitrust Practitioner*, 5 Geo. Mason. L. Rev. 457, 460 (1997) ("As the [pre-Stigler] structuralists viewed it, all an oligopolist needed to do in order to earn supracompetitive profits was to charge a high price, confident that all of its competitors would be making the same calculation. From a [modern] game theoretic perspective, it is not so easy. Agreeing on terms, detecting deviations, and punishing deviations all pose problems.").

9. Richard A. Posner, Antitrust Law, An Economic Perspective 47 (1976) (citing Stigler, supra note 3). Under this Stiglerian approach, "interdependent" pricing is, in fact, the product of a "'cartel' that requires no detectable machinery of collusion - the 'cartel' in which collusion is effectuated by a purely tacit meeting of the minds, a mutual forbearance to carry production to [competitive levels] where price equals marginal cost." *Id.*

10. *See, e.g.*, Willard K. Tom, *Game Theory In The Everyday Life Of The Antitrust Practitioner*, 5 Geo. Mason L. Rev. 457, 459-60 (1997); Jonathan B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 39 Antitrust Bull. 143 (1993).

11. Willard K. Tom, *Game Theory In The Everyday Life Of The Antitrust Practitioner*, 5 Geo. Mason L. Rev. 457, 460 (1997).

12. Donald F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75 Harv. L. Rev. 655, 665 (1962).

13. *See*, Jonathan B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 39 Antitrust Bull. 143, 207-09 (1993).

14. Sherman Act violations may be prosecuted by the federal government, state governments, and/or private plaintiffs.

15. *See, e.g.,* United States v. Trenton Potteries Co., 273 U.S. 392 (1927) (holding price-fixing agreements *per se* illegal); Addyston Pipe & Steel Co. v. United States, 175 U.S. 211, 240-241 (1899) (combination to allocate business among participants was "necessarily a restraint upon interstate commerce" illegal under the Sherman Act); United States v. Socony-Vacuum Oil Co., 310 U.S. 150, 223 (1940) ("under the Sherman Act a combination formed for the purpose and with the effect of raising, depressing, fixing, pegging or stabilizing the price of a commodity in interstate or foreign commerce is illegal *per se*"); Palmer v. BRG of Georgia, Inc., 498 U.S. 46 (1990) (market division agreements among actual or potential competitors illegal).

16. *See, e.g.*, Continental T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36, 49 (1977) (under the rule of reason "the factfinder weighs all of the circumstances of a case in deciding whether a restrictive practice should be prohibited as imposing an unreasonable restraint on competition"); National Society of Professional Engineers v. United States, 435 U.S. 679, 691 (1978) (rule of reason inquiry should focus on determining whether the agreement "promotes competition or . . . suppresses competition").

17. In this respect, tacit collusion refers to a conscious agreement requiring the active participation of a group of conspirators, but which is effected through less than express means (such as signaling conduct or exchanges of sensitive business information).

18. *See* William E. Kovacic, *The Identification and Proof of Horizontal Agreements Under the Antitrust Laws*, 38 Antitrust Bull. 5 (1993).

19. Local Union No. 189, Amalgamated Meat Cutters v. Jewel Tea Co., 381 U.S. 676, 720 (1965) (Goldberg, J., concurring in part and dissenting in part). *See also, e.g.,* Todorov v. DCH Healthcare Auth., 921 F.2d 1438, 1456 (11th Cir. 1991) ("only in rare cases . . . can a plaintiff establish the existence of a section 1 conspiracy by showing an explicit agreement"); *In re* Petroleum Prods. Antitrust Litig., 906 F.2d 432, 439 (9th Cir. 1990) ("direct evidence will rarely be available"), *cert. denied,* 500 U.S. 959 (1991).

20. *See, e.g.*, ES Dev., Inc. v. RWM Enters., 939 F.2d 547, 553-54 (8th Cir. 1991) ("it is axiomatic that the typical conspiracy is 'rarely evidenced by explicit agreements,' but must almost always be proved by 'inferences that may be drawn from the behavior of the alleged conspirators'") (quoting H.L. Moore Drug Exch. v. Eli Lilly & Co., 662 F.2d 935, 941 (2d Cir. 1981), *cert. denied* 459 U.S. 880 (1982)), *cert. denied*, 502 U.S. 1097 (1992).

21. *See, e.g.,* Theater Enterprises v. Paramount Film Distributing Corp., 346 U.S. 537 (1954) (holding that parallel behavior alone is insufficient to prove a section 1 conspiracy); Wallace v. Bank of Bartlett, 55 F.3d 1166, 1168 (6th Cir. 1995) ("[P]arallel pricing, without more, does not itself establish a violation .... Courts require additional evidence which they have described as 'plus factors'"), *cert. denied*, 516 U.S. 1047 (1996).

22. Matsushita Electrical Industrial Co. v. Zenith Radio Corp., 475 U.S. 574, 588 (1986) (quoting Monsanto Co. v. Spray-Rite Service Corp., 465 U.S. 752, 764 (1984)). The Court noted previously in its opinion that to have standing to bring an antitrust action, plaintiffs must allege injury to competition and injury to themselves. *Id*. at 583 (comparing Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc., 429 U.S. 477, 488-89 (1977)).

23. For discussion of traditional plus factors considered by courts, *see, e.g.*, Jonathan B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 39 Antitrust Bull. 143 (1993); ABA Antitrust Section, Antitrust Law Developments (Fourth) 10-14 (4th ed. 1997).

24. *See, e.g.*, Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209 (1993) (demonstrating the difficulties of proving tacit collusion). *See also, e.g.*, Jonathan B. Baker, *Two Sherman Act section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 38 Antitrust Bull. 143 (1993) (suggesting that as we learn more about interdependent (non-collusive) behavior, it becomes more difficult to prove tacit collusion).

25. *See generally* ABA Antitrust Section, Antitrust Law Developments (Fourth) 10-14 (4th ed. 1997) (discussing the persuasiveness of various evidentiary factors).

26. Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 587 (1986).

27. *See, e.g.*, Jonathan A. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory,* 38 Antitrust Bull. 143 (1993). For a detailed discussion of factors rendering markets more or less prone to collusion, *see* Richard A. Posner, Antitrust Law, An Economic Perspective 55-71 (1976).

28. *See, e.g.*, Richard Posner & Frank Easterbrook, Antitrust Cases, Economic Notes and Other Materials 341 (2d ed. 1981) ("[I]f the economic evidence warrants an inference of collusive pricing, there is neither legal nor practical justification for requiring evidence that will support the further inference that the collusion was explicit rather than tacit."); Richard A. Posner, Economic Analysis of Law 288-90 (4th ed. 1992) (identifying evidence probative of collusion). *See also, e.g.*, Robert F. Lanzillotti, *Coming To Terms With Daubert In Sherman Act Complaints: A Suggested Economic Approach*, 77 Neb. L. Rev. 83 (1998) (offering an economic approach to determine whether actual supracompetitive bid pricing resulted from agreement).

29. *See, e.g.*, VI Phillip E. Areeda, Antitrust Law ¶1407e (1986) ("Uncertainty is the most general of the impediments to cartel-like results in oligopoly. It follows that collective practices reducing such uncertainty . . . are dangerous to competition. . . . [Where] [t]here are no procompetitive redeeming virtues in permitting [an agreement] . . . there is no difficulty in concluding that the agreement . . . is itself an unreasonable restraint of trade. Therefore the Sherman Act is violated.").

30. *See, e.g.*, United States v. Container Corp. of America, 393 U.S. 333 (1969) (exchanges of information regarding most recent prices charged or quoted among sellers of corrugated shipping containers violated section 1); United States v. Airline Tariff Publishing Co., 836 F.Supp. 9 (D.D.C. 1993) (approving consent decree settling challenge by U.S. that domestic airlines used computerized fare exchange system to signal future price decisions).

31. *See* ABA Antitrust Section, Antitrust Law Developments (Fourth) 89 (4th ed. 1997) ("Information exchanges, or agreements to share information, are not in themselves illegal *per se*. They are judged under the rule of reason. Applying the rule of reason, courts have prohibited information exchanges in industries whose structural characteristics (such as high concentration) indicate that the exchanges are likely to have anticompetitive effects.") (Citations omitted).

32. *See, e.g.*,United States v. Yellow Cab Co., 332 U.S. 218 (1947); American Tobacco Co. v. United States, 328 U.S. 781, 809 (1946).

33. *See, e.g.*, American Tobacco v. United States, 328 U.S. at 809; Seagood Trading Corp. v. Jerrico, Inc., 924 F.2d 1555, 1573-75 (11th Cir. 1991).

34. *See, e.g.*, ABA Section of Antitrust Law, Antitrust Law Developments (Fourth) 302-303 (4th ed. 1997) ("Whether a conspiracy to monopolize exists is ordinarily a question of fact to be resolved under the same principles that govern conspiracies in restraint of trade under Section 1 of the Sherman Act.").

35. American Tobacco v. United States, 328 U.S. at 809.

36. *Id.*

37. *See*, e.g., Great Escape, Inc. v. Union City Body Co., 791 F.2d 532, 541 (7th Cir. 1986) (refusing to infer specific intent where there was no evidence of "predatory conduct," which the court defined as "conduct that is in itself an independent violation of the antitrust laws or that has no legitimate justification other than to destroy or damage competition"); Pacific Engineering & Production Co. v. Kerr-McGee Corp., 551 F.2d 790, 795 (10th Cir. 1976) ("'[t]o prove that a person has that type of exclusionary intent which is condemned in anti-trust cases there must be evidence that the person . . . intends to use or actually does use unfair weapons'") (quoting Union Leader Corp. v. Newspapers of New England, Inc., 180 F. Supp. 125, 140 (D. Mass. 1960)), *cert. denied* 434 U.S. 879 (1977). *See also, e.g.,* Bailey's, Inc. v. Windsor Am., Inc., 948 F.2d 1018, 1032 (6th Cir. 1991) (improbable that firm with 10% share could possess specific intent to monopolize market); Optivision, Inc. v. Syracuse Shopping Ctr. Assocs., 472 F. Supp. 665, 680 (N.D.N.Y. 1979) ("the absence of any serious likelihood of successfully achieving monopolization [supports] a finding of lack of specific intent").

38. IIIA Philip E. Areeda and Herbert Hovenkamp, Antitrust Law ¶809 (1996).

39. *Id.*

40. 119 S. Ct. 493 (1998).

41. *Id.* at 500 ("We do not see, on the basis of the facts alleged, how Discon could succeed [under § 2] without prevailing on its §1 claim.").

42. Nancy Trethewey, *Finally: Some Guidance On Section 2 Conspiracies*, 5 The Sherman Act Almanac 4 (1999).

43. *See, e.g.,* Brown Shoe Co. v. United States, 370 U.S. 294 (1962); United States v. Philadelphia National Bank, 374 U.S. 321 (1963); Federal Trade Commission v. Proctor & Gamble, 386 U.S. 568 (1967).

44. Federal Trade Commission v. Procter & Gamble, 386 U.S. 568 (1967). *See also, e.g.,* Brown Shoe Co. v. United States, 370 U.S. 294 (1962); Hospital Corp. of America v. FTC, 807 F.2d 1381, 1389 (7th Cir. 1986) ("[a]ll that is necessary is that the merger create an appreciable danger of [anticompetitive] consequences in the future. A predictive judgment, necessarily probabilistic and judgmental rather than demonstrable, is called for"), *cert. denied*, 481 U.S. 1038 (1987)(citation omitted); FTC v. Staples, 970 F. Supp. 1066 (D.D.C. 1997).

45. Brown Shoe, 370 U.S. at 323.

46. Hospital Corp. of America v. FTC, 807 F.2d 1381, 1389 (7th Cir. 1986), *cert. denied*, 481 U.S. 1038.

47. *See, e.g.,* United States v. Penn-Olin Chem. Co., 378 U.S. 158, 170-71 (1964) ("The grand design of the original §7 . . . was to arrest incipient threats to competition which the Sherman Act did not ordinarily reach").

48. Philadelphia National Bank, 374 U.S. 321 (1963); Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 227-230 (1993) (stating that "oligopolistic price coordination or conscious parallelism, . . . [is] not in itself unlawful" but noting that "[i]n the §7 context, it has long been settled that excessive concentration and the oligopolistic price coordination it portends, may be the injury to competition the Act prohibits"). Similarly, section 7 can be employed to block mergers that create unilateral market power, the exercise of which would not necessarily run afoul of the Sherman Act.

49. Indeed, if the post-merger market is perfectly conducive to coordination one might predict not only that the transaction "may tend substantially to lessen competition," (the section 7 standard) but that post-merger coordination (in the form of interdependent behavior) is actually more likely than not to occur.

50. *See, e.g.,* Richard A. Posner, Antitrust Law, An Economic Perspective 56 (1976) ("No responsible economist would claim today that concentration was the *only* factor predisposing a market to collusion."); Richard Posner and Frank Easterbrook, Antitrust Cases, Economic Notes and Other Materials 41-43 (2d ed. Supp. 1984) ("[w]e must be very cautious of claims that concentrated markets are not competitive markets").

51. Federal Trade Commission and Department of Justice Joint Horizontal Merger Guidelines (1992). Section 2.1 of the Guidelines sets forth a basic framework for assessing the conduciveness of the market to coordination based on the ability of firms to reach terms of coordination, detect deviations from those terms, and punish deviators.

52. For a discussion of "maverick" firms and the implications of their elimination through merger, see Jonathan B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 38 Antitrust Bull. 143, 199-207 (1993). *See also* Posner, supra note 18 (discussing factors enhancing conduciveness to collusion).

53. VI Phillip E. Areeda, Antitrust Law, ¶ 1407 b (1986).

54. *Id.* at ¶ 1435.

55. *See, e.g.,* National Macaroni Manufacturers Association v. FTC, 345 F.2d 421 (7th Cir. 1965) (agreement to standardize content of macaroni); FTC v. Cement Institute, 333 U.S. 683 (1948) (agreement to use basing point system); United States v. Container Corp. of America, 393 U.S. 333 (1969). *Cf. In re* Petroleum Prods. Antitrust Litig., 906 F.2d 432 (9th Cir. 1990) (allowing jury to infer price fixing agreement from exchange of price information where "appellees' officers' own testimony indicates that there was essentially no purpose for publicly announcing [price information] other than to facilitate price coordination"), *cert. denied,* 500 U.S. 959 (1991).

56. 729 F. 2d 128, 140 (2d Cir. 1984).

57. The complaint against Abbott alleged actual collusion.

58. The complaint against one of these parties, Mead Johnson, alleged two other facilitating practices – exchange of information among competitors on intentions not to advertise directly to consumers and letters from Mead to four states stating the dollar amount it intended to bid when these states requested sealed bids for contracts for the supply of infant formula ("price signaling").

59. United States v. American Airlines, Inc., 743 F.2d 114 (5th Cir. 1984), *cert. dismissed*, 474 U.S. 1001 (1985) (attempted monopolization involving solicitation by one chief executive of an airline to his counterpart at another airline to fix prices). More recently attempted price fixing cases have been brought criminally under wire fraud or mail fraud statutes. *E.g.,* U.S. v. Ames Sintering Co., 927 F.2d 232 (6th Cir. 1990).

60. *See, e.g.* Stone Container, C-3806 (1998), 5 Trade Reg. Rep. (CCH) ¶ 24,390; Quality Trailer Products Corp. ("Quality"), C-3403 (1992), 5 Trade Reg. Rep. (CCH) ¶ 23,246 (no allegation pertaining to market power).

61. An example of an explicit invitation to collude is the conduct in *Quality Trailer Products Corp.*, in which the complaint alleged that the respondent's representatives met with an officer of a competing firm and "told the competitor that its price ... was too low, that there was plenty of room in the industry for both firms, and that there was no need for the two companies to compete on price." The complaint further alleged that the officials "provided assurances" that Quality would not sell the products below a specified price. *See* ¶ 4 of complaint, Quality, *supra* note 60.

62. Arquit, The Boundaries of Horizontal Restraints: Facilitating Practices and Invitations to Collude, 61 *Antitrust Law Journal* 531, 544 (1993).

63. Even in the absence of an oligopolistic market structure, the soliciting party may believe it can exercise market power over a subset of customers in the market. Another theoretical basis is that enforcement against attempted collusion will achieve additional deterrence of actual collusion and is unlikely to inhibit procompetitive conduct, *i.e.*, integration efficiencies.