

PREDATORY INVESTMENTS

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Since 1945, when Learned Hand asserted in *Alcoa*¹ that Alcoa's decision to preserve its market share by "doubling and redoubling its capacity" made its supposed² possession of monopoly power illegal under the Sherman Act, American lawyers and economists have been aware of the related³ possibility that a business' decision to grow internally by making one or more real investments⁴ may be independently illegal—in particular, may be predatory and hence violative of the Sherman Act's prohibition of monopolizing or attempting to monopolize.⁵ However, neither the courts nor their legal and economic company have ever explicitly much less correctly defined the concept of a predatory investment.

This Article

- (1) distinguishes two types of investment, both of which may be predatory—
- (A) what I call "quality-or-variety-increasing (QV) investments," investments that are designed to increase the quality or variety of the products the investor offers for sale, to increase the quality or variety of the distributive outlets through which the investor sells its products, or to increase the average speed with which the investor delivers his products through a

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¹ *United States v. Aluminum Co. of America*, 148 F.2d 416, 431 (2d Cir. 1945).

² Although the *Alcoa* court concluded that Alcoa did have monopoly power in the sense that it believed was of § 2 concern, it is not at all clear that Alcoa did have such power. I should add that I do not think that possession of monopoly power is an element of the crime of monopolizing or attempting to monopolize. See note 17 *infra*.

³ I say "related" because Hand never said that Alcoa's investment decisions were illegal in themselves though he did use the word "exclusions" to describe the capacity-expansions on which he focused. This characterization is significant because in antitrust-law jargon the statement that an act is "exclusionary" implies its illegality.

⁴ I am contrasting this choice with a choice to make a monetary investment in another company—to execute a total or partial acquisition of another business.

⁵ See § 2 of the Sherman Antitrust Act, 26 Stat. 209 (1890) (codified as amended at 15 U.S.C.A. §§ 1-11 [1994]).

fluctuating-demand cycle (by increasing his capacity and/or inventory) and

(B) what I call non-QV, cost-reducing investments in plant-modernization, new-plant construction, and production-process research (PPR)—research that is designed to discover an alternative production process for producing an existing product (an alternative process whose use would reduce average total cost, marginal cost, and/or accident and pollution costs),⁶

- (2) defines the circumstances in which each of these types of investment can properly be said to be predatory,
- (3) analyzes whether the courts that have heard predatory-investment cases and the economists who have attempted to define the concept “predatory investment” have defined this concept correctly either explicitly or implicitly in use, and
- (4) discusses the structure, content, and practicability of different types of predatory-investment suits.

The Article is divided into four parts. Part I delineates the Sherman Act’s test of legality, defines the concept “predatory conduct,” and explains why all predatory conduct violates the Sherman Act’s test of legality.

Part II defines and elaborates on the concept of the “monopolistic investment incentive” an investor may have to make any type of investment and uses this concept to re-express the definition of the concept of a predatory investment.

Part III (1) delineates and explains examples of QV investments that respectively are and are not predatory, (2) criticizes the courts’ conclusions about the circumstances in which QV

6 I recognize that an investor may sometimes choose to design and produce a new product that is both different from its predecessors and cheaper to produce than its predecessors. Nothing I say turns on whether such an investment is classified as a QV investment. I would be prone to classify as a non-QV, cost-reducing investment one that creates a new product whose customers value it less than they valued the rival products the relevant buyers originally purchased but whose cost of production was sufficiently lower than that of its predecessors to make the investment profitable. I suppose I would classify as a mixed QV/non-QV, cost-reducing investment one that created a product that was both cheaper to produce than its predecessors and more valuable to its buyers than the products for which they could substitute it. To repeat, however, nothing I say turns on these possibly-problematic classifications. The text will focus on “pure” QV investments and “pure” non-QV investments in plant-modernization, new-plant construction, and product-process research. Investments that are mixed in the above sense can be predatory for the reason that pure QV investments can be predatory and/or for the reason that non-QV investments can be predatory. Indeed, “pure” QV investments that reduce the marginal cost of production while increasing the average total cost of production can also be predatory not only for the reason the text indicates that pure QV investments may be predatory but also for one of the reasons it indicates non-QV investments may be predatory.

investments will be predatory, (3) explains why the alternative definition of “a predatory (QV) investment” implicitly adopted by two highly respected economists⁷ is incorrect in the situation to which it was designed to apply—the situation in which the relevant QV investor believes *ex ante* that his investment will or may induce an established rival to withdraw an existing QV investment, fails to address the proper definition of a “predatory QV investment” in another, more-empirically-important situation in which QV investments may be predatory—situations in which the relevant QV investor believes *ex ante* that his investment will or may deter an actual or potential competitor from adding to total QV investment in the relevant area of product-space by making a new QV investment, and implies a definition of “predatory QV investments” that covers this latter situation that is also incorrect, and (4) discusses the evidence that would have to be adduced to prove or disprove the predatory character of a QV investment in a litigative context.

Part IV examines the circumstances in which the members of two sets of non-QV, cost-reducing investment types will be predatory—(1) marginal-cost-reducing investments in plant-modernization, new-plant construction, and production-process research (PPR) that is not designed to discover less-accident-and-pollution-cost-prone production processes and (2) investments in PPR that are designed to discover less-accident-and-pollution-cost-prone production processes. Part IV also examines the structure of litigation about the predatory character of such non-QV, “cost-reducing” investments and the practicability of winning predation suits directed at such non-QV investments.

I. The Sherman Act’s Test of Legality, the Proper Definition of “Predatory” Conduct, and the Legality of Predatory Conduct Under the Sherman Act

Many academic lawyers—particularly those who know some economics⁸—and many economists who have written about antitrust law⁹ proceed on the assumption that the American

⁷ See Janusz Ordover and Robert Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L. J. 8, 9, 13, 24, 41 (1981).

⁸ See, e.g., Frank Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263 (1981), Robert Bork, *THE ANTITRUST PARADOX* (1978), and Richard Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, 21 STAN. L. REV. 1562 (1969).

⁹ See, e.g., Paul Joskow and Alvin Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L. J. 213 (1979).

antitrust laws authorize the courts to regulate the conduct and practices the laws cover in the public interest, which the relevant scholars tend to equate with regulating the relevant conduct in the way that increases economic efficiency to the greatest extent possible.¹⁰ I disagree. In my judgment, a proper reading of the two leading American antitrust statutes (the Sherman and Clayton Acts¹¹)—a reading that takes account of their text, their legal antecedents, the social histories that preceded their enactment, their legislative histories, and the overall structure of the legal regime in which they play a part¹²—reveals that neither promulgates an economic-efficiency test of legality.

Since the antitrust legality of the investments with which this Article is concerned is determined by the Sherman Act, I will focus here exclusively on the test of legality the Sherman Act should be interpreted to promulgate. The Sherman Act has two basic provisions. Section 1 prohibits “every contract, combination, or conspiracy in restraint of trade or commerce among the several states, or with foreign nations,” and Section 2 makes it illegal for anyone to “monopolize, or attempt to monopolize, or combine or conspire...to monopolize” any part of interstate or foreign commerce. In my opinion, correctly interpreted, these two provisions of the Sherman Act would be read to prohibit any¹³ business act or practice whose profitability was

10 In fact, many of the relevant scholars seem to assume (incorrectly) that there is no difference between the judicial rulings that would increase competition (in some ill-defined sense) to the greatest extent possible, benefit consumers to the greatest extent possible, and increase economic efficiency to the greatest extent possible. For a discussion of the differences among these three objectives and the reasons why judicial decisions that secure one of them to the greatest possible extent are unlikely to achieve the others to the greatest possible extent, see Richard S. Markovits, *Monopolistic Competition, Second Best, and THE ANTITRUST PARADOX: A Review Article*, 77 MICH. L. REV. 567, 580 (1979).

11 See the Sherman Antitrust Act, *op. cit. supra* note 5 and the Clayton Antitrust Act, 38 Stat. 730 (1914) (codified as amended at 15 U.S.C.A. §§ 12-27 [1994]). The text ignores the third major American antitrust statute—the Federal Trade Commission Act—because it has almost always been assumed to have promulgated the same tests of legality as the Sherman and Clayton Acts. See Federal Trade Commission Act, 38 Stat. 717 (1914) (codified as amended at 15 U.S.C.A. §§ 41-58 [1994]). (Admittedly, the Supreme Court has indicated that behavior that violates neither the Sherman nor the Clayton Antitrust Act may still violate the Federal Trade Commission Act. However, the Court has never produced an example of behavior that would violate the FTC Act without violating the Sherman or Clayton Act.)

12 For a detailed discussion of the respective American antitrust laws’ tests of legality, see Richard S. Markovits, *Some Preliminary Notes on the American Antitrust Laws’ Economic Tests of Legality*, 27 STAN. L. REV. 891 (1975).

13 The coverage of the two basic provisions of the Sherman Act is very broad. In fact, the only kind of conduct they might not cover are unsuccessful attempts to enter into anti-competitive contracts. This conclusion

perceived by its perpetrators *ex ante* to be “*ceteris paribus* critically increased” by (in reality, *ceteris paribus* critically inflated by)¹⁴ its tendency to increase the demand curve the relevant actor(s) faced or would face by reducing the absolute attractiveness of the offers against which the actor(s) must compete.

Obviously, the expression “*ceteris paribus* critically inflated” needs to be explicated. In my terminology, the private profits yielded by a choice are said to be “inflated” if they exceed the economic or allocative efficiency¹⁵ of the choice in question; the private profits of a choice are said to be “critically inflated” if the choice is privately profitable despite the fact that it is allocatively inefficient; and the private profits of a choice are said to be “*ceteris paribus*

reflects the fact that, unlike § 2, § 1 does not explicitly cover attempts, the Sherman Act is in part a criminal statute, the central government of the United States has never passed a general criminal attempt statute (which would prohibit attempting to do anything that would be illegal to succeed in doing), and the federal courts have always refused to read attempt provisions into criminal statutes that do not contain them even when their omission was clearly a drafting error. In my experience, antitrust lawyers believe that the courts would and should hold that unsuccessful attempts to enter into anti-competitive agreements violate § 2’s prohibition of attempts to monopolize while criminal lawyers believe that the courts would never and should never reach such a conclusion—would hold that the Sherman Act does not prohibit unsuccessful attempts to enter into anti-competitive agreements.

14 I have used the word “increased” and added the parenthetical to indicate that an investor’s QV investment can be predatory without his consciously focusing on the fact that its profitability was critically inflated (on the fact that a critical amount of the profits he anticipated it would yield him by increasing his other projects’ profit-yields would have no allocative-efficiency-gain counterparts). All that is required is that the investor’s *ex ante* conclusion that his investment was *ex ante* at least normally profitable be critically affected by his perception that it might increase his other products’ profit-yields in one or more of the five ways listed in the text that are distorting (regardless of whether he focuses on the fact that the profits in question are distorted). In one sense, the law could be said to condemn his act and him because what he did know should have led him to realize that he was making an inherently unprofitable and therefore presumptively economically inefficient choice because of the purely private strategic benefits it gave him.

15 The text that follows substitutes the term “allocative efficiency” for the conventional “economic efficiency” to remind readers that the concept is technical and that the fact that a choice increases allocative efficiency is neither a necessary nor a sufficient condition for either its consistency with our rights-commitments or its overall desirability if it is neither required by nor prohibited by our rights-commitments. These conclusions reflect the fact that the statement that a choice increases allocative efficiency implies only (1) that it makes somebody better off without making anyone worse off—if the expression “increasing allocative efficiency” is defined in a non-monetized and useless way—or (2) that it gives its beneficiaries the equivalent of more dollars than it takes away from its victims—if the expression is defined in the monetized way in which economists actually use it. See Richard S. Markovits, *On the Relevance of Economic Efficiency Conclusions*, 29 FLA. ST. L. REV. 1 (2002) and *A Constructive Critique of the Traditional Definition and Use of the Concept of “the Effect of a Choice on Allocative (Economic) Efficiency”*: *What Is Right and Why the Kaldor-Hicks Test, the Coase Theorem, and Virtually All Law-and-Economics Welfare Arguments Are Wrong* (henceforth *Constructive Critique*) 1993 ILL. L. REV. 485 (1993).

I should add that, in my terminology, the profits yielded by a choice are said to be “deflated” if they are lower than the allocative efficiency of that choice. This “distortion,” “inflation,” “deflation” terminology is applied not only to the profits yielded by a choice but also to the private costs and benefits yielded by a choice. In particular, the private costs or private benefits of a choice are said to be distorted, inflated, or deflated if they respectively diverge from, exceed, or are exceeded by their allocative counterparts.

critically inflated” by one of its effects or tendencies (or by one or more Pareto imperfections) if the effect or tendency (or imperfection[s] in question) would critically inflate the private profits of the choice in question if nothing else “distorted” those profits—*i.e.*, if nothing else caused them to diverge from the choice’s allocative efficiency (for example, if the economy were otherwise-Pareto-perfect).¹⁶

Now that I have defined the Sherman Act’s test of legality,¹⁷ I can define the general concept of predatory conduct and reach some general conclusions about the Sherman-Act legality of conduct that is properly deemed predatory. Since I anticipate that some readers will object to the idea of a “proper definition” of a concept, I should state at the outset that my belief in the correctness of the following definition of “predatory conduct” is based on its consistency both with the way in which the concept has been used in the economics and legal literature and with predatory conduct’s pejorative or sinister connotation. In any event, in my judgment, business conduct is properly said to be predatory if its profitability is *ceteris paribus* critically inflated by its tendency to reduce the absolute attractiveness of the offers against which the alleged predator has (predators have) to compete by driving an established rival out of part or all of its business, by inducing an established rival to relocate its QV investments farther away from those of the alleged predator’s projects, by deterring the entry of a potential competitor or the QV-investment expansion of an established rival, or by inducing an entering potential competitor or expanding established rival to locate its new QV investment farther away in product-space from the predator's projects than that investor would otherwise have found profitable.

16 For an analysis of the ways in which Pareto imperfections—imperfections in seller competition, imperfections in buyer competition, externalities, taxes on the margin of income, chooser non-sovereignty, chooser non-maximization, and critically distorting buyer surplus—will cause allocative inefficiency of various types, see Richard S. Markovits, *The Causes and Policy Significance of Pareto Resource Misallocation: A Checklist for Micro-Economic Policy Analysis*, 28 STAN. L. REV. 1 (1976).

17 Somewhat surprisingly and highly regrettably, the federal courts have never explicitly defined the test of legality they believe the Sherman Act promulgates. However, by and large, the test I associate with the Act is consistent with the relevant judicial decisions. Nevertheless, I must admit that there are two significant exceptions to the preceding claim. First, the courts assert that the Sherman Act promulgates an objective test of legality (which focuses on the actual or objectively predictable effects of conduct) rather than the subjective test I have articulated (which focuses on the actor’s or actors’ *ex ante* perceptions of the effects of the relevant conduct). Second, the courts claim that a defendant’s conduct cannot violate § 2 of the Sherman Act unless (1) the defendant possessed monopoly power prior to committing the allegedly illegal act in question and (2) its commission of the relevant act or acts increased its monopoly power. I reject both these conditions.

It may be useful to explain why the conduct I have defined to be predatory deserves to be condemned. In particular, business conduct that satisfies my definition of “predatory” should be condemned because it is maldistributive, *ceteris paribus* misallocative, and badly motivated. Such conduct is maldistributive because it injures innocent parties and benefits wrongdoers. The relevant innocent victims are the predator's target, who sustains a loss not attributable to its absolute or relative allocative inefficiency, and the predator's customers, who will lose more in the long run when the predation reduces the competition their best-placed suppliers face than they will gain in the short run from any price-reduction or other improvement in terms the predatory act entails. The relevant wrongdoer is the predator, who profits by committing acts that are both presumptively misallocative in the short run (because they are, by definition, inherently unprofitable [unprofitable but for the strategic advantages they generate]) and *ceteris paribus* misallocative in the long run as well to the extent that they are successful (because the reductions in QV-investment competition¹⁸ and price competition they will generate in the long run if they are successful will be misallocative on balance). As the preceding sentence indicated, predation also tends to be undesirable because it is misallocative on balance in both the short run and the long run. Indeed, although space-constraints preclude me from demonstrating this point, an analysis that took appropriate account of the other relevant imperfections that are present in the system would reveal that the tendency that predation has to reduce competition in the long run is misallocative not only on the otherwise-Pareto-perfect assumptions that play a role in predatory conduct's definition but also on realistic assumptions about the Pareto-imperfectness of our economy.¹⁹ Finally, predatory conduct is ill-motivated because, as I have just argued, it is presumptively-economically-inefficient conduct in which the predator would not have engaged

18 In my terminology, the concept “QV-investment competition” refers to the process in which the owners of QV investments in some (arbitrarily designated) area of product-space compete away the supernormal profits their QV investments in that area would otherwise yield by introducing additional QV investments into that area of product-space that raise the equilibrium level of QV investment in that area of product-space. The preceding sentence and my work in general do not refer to markets because I do not think that markets can be defined non-arbitrarily. See Richard S. Markovits, *On the Inevitable Arbitrariness of Market Definitions*, 2002 ANTITRUST BULL. 571 (2002).

19 See Richard S. Markovits, *The Causes and Policy Significance of Pareto Resource Misallocation: A Checklist of Micro-Economic Policy Analysis*, 28 STAN. L. REV. 1 (1976) and *The Allocative Efficiency and Overall Desirability of Oligopolistic Pricing Suits*, 28 STAN. L. REV. 45 (1976).

but for his belief that it would enable him to secure purely private gains that would come at the expense of innocent rivals and buyers.

The illegality of predatory conduct under the Sherman Act should be apparent from the preceding articulation of the Sherman Act's test of legality and definition of the concept of predatory conduct. Predatory conduct could be described as one of the two types of conduct that can violate the Sherman Act. More specifically, (non-predatory) price fixing or its equivalents may²⁰ or will violate the Sherman Act because a price fixer's *ex ante* perception that the conduct in question will generate at least normal profits is critically affected by its belief that the relevant conduct may reduce the absolute attractiveness of the offers against which the price fixer must compete by inducing its rivals to offer buyers objectively-less attractive terms on their existing products. Conduct that is properly called predatory will violate the Sherman Act because its perpetrator's perception that it is *ex ante* profitable is critically affected by a belief that the conduct may increase the perpetrator's profits by reducing the absolute attractiveness of the offers against which it will have to compete by inducing an established rival to withdraw or relocate a QV investment that was already established in the relevant area of product-space, inducing an established rival to forego making or to relocate its new QV investment in the predator's area of product-space, or inducing a potential competitor to forego executing or to change the location of a new entry into the predator's area of product-space.

II. The Concept of a "Monopolistic Investment Incentive" and the Definition of a "Predatory Investment"

My concept of a "monopolistic investment incentive" plays a crucial role in the operational definition of the concept "predatory investment." In my terminology, an investor is said to have a monopolistic investment incentive to make a QV investment (a non-QV, cost-reducing investment) when and to the extent that he believes *ex ante* that the investment in question will increase the profit-yields of his other QV investments (his QV investments) not necessarily in comparison with the *status quo ante* but in comparison with the situation that would prevail if the investor had not made the investment in question in ways that do not suggest

²⁰ See note 13 *supra* for a discussion of the Sherman-Act legality of unsuccessful attempts to enter into anti-competitive contracts.

that the QV (cost-reducing) investment in question will be more allocatively efficient than it otherwise would have been. Hence, the fact that an investor believes *ex ante* that he has a monopolistic investment incentive to make a particular investment implies that he believes *ex ante* that the private profits that the investment in question will yield will be *ceteris paribus* inflated—more specifically, that *ceteris paribus*, the private profits the investment in question will yield will exceed the amount by which it will increase allocative efficiency by at least as much as the operative monopolistic investment incentive.²¹

When the investment that he should conclude that he has a monopolistic investment incentive to make is a QV investment, I call the relevant incentive a “monopolistic QV-investment incentive.” When the investment that the investor believes he has a monopolistic incentive to make is a cost-reducing investment, I call the relevant incentive a “monopolistic cost-reducing-investment incentive.”

Before proceeding to offer an operational definition of the concept “predatory investment” that incorporates the notion of a monopolistic investment incentive, I want to make five points about the concept “monopolistic investment incentive.” The first relates specifically to monopolistic QV-investment incentives. The fact that an investor believes that a particular QV investment will increase the profit-yields of the investor’s other QV investments is not a sufficient condition for the investor’s believing that he has a monopolistic QV-investment incentive to make the QV investment in question. Thus, the fact that a QV investor believes *ex ante* that a particular QV investment will increase his other QV investments’ profit-yields by enabling him to take advantage of cost-related economies of scale in production, distribution, or finance will not imply that he should conclude that he has a monopolistic investment incentive to make the investment in question since the fact that the relevant cost-savings are presumptively allocative as well as private (that the allocative cost-savings would equal their private counterparts in an otherwise-Pareto-perfect economy) implies that the additional profits the investor obtains on this account will not inflate the private profits yielded by the QV investment

21 In this Article, I am defining the monopolistic investment incentive a firm has to make a particular QV or cost-reducing investment by the absolute amount by which the incentive increases the investment’s *profit-yield*. This definition differs from the definition I usually employ. In other works, I have defined the monopolistic QV-investment incentive a firm has to make a particular QV investment by the absolute increase it yields in the *rate of return* the investment in question generates. For an explanation of the “at least as much” language of the footnoted sentence, see the text at note 25 *supra*.

in question—*i.e.*, will not cause the total private profits it yields to exceed its contribution to allocative efficiency. For the same reason, the fact that a QV investor believes *ex ante* that a particular QV investment will increase the profit-yields of his other QV investments by increasing the equivalent-dollar value to relevant buyers of the other products or services he supplies by linking his brand name to a superior product whose existence increases the reputation of his other products, by changing the image of his product-line (perhaps by changing the attributes of his customers) in ways that increase the demand for his other products, or by enabling him to supply a full line to final buyers who prefer purchasing complete sets for aesthetic reasons, to final buyers or distributors who wish to take advantage of “economies of scale” in learning about particular products they might purchase or distribute, or to final buyers or distributors who wish to take advantage of “economies of scale” in learning how to use, learning how to sell, or selling particular product-variants does not imply on our otherwise-Pareto-perfect assumption that the investor should conclude *ex ante* that he has a monopolistic investment incentive to make the QV investment in question.

The second point relates both to monopolistic QV-investment incentives and to monopolistic cost-reducing-investment incentives. Investors will have a monopolistic incentive to make a QV investment or a cost-reducing investment only if the investment in question induces a rival to withdraw a QV investment, deters a rival from introducing a new QV investment that will increase total QV investment in the relevant area of product-space, and/or induces a rival to change the location of an existing or future QV investment in the relevant area of product-space. Both QV investments and various types of cost-reducing investments can induce all these types of rival QV-investment responses. A QV investment X1 can do so because its presence can reduce the number of customers that the owner of an existing or future rival QV investment X2 would be privately-best-placed to supply via X2 or the size of the competitive advantages the owner of an existing or rival QV investment X2 would have in relation to customers that his ownership of X2 made him or would make him privately-best-placed to supply.²² A cost-reducing investment that reduced the marginal cost that its maker had

²² In my terminology, a seller is privately-best-placed to supply a particular buyer if the seller could profit by supplying that buyer on terms that would preclude any other rival from making an inherently profitable sale to the buyer in question. The basic “competitive advantage” that a supplier enjoys in his relations with a particular buyer he is privately-best-placed to supply equals the amount by which the buyer prefers his product variant to that of his closest rival for that buyer’s patronage *plus* the amount by which the marginal (incremental) cost his closest rival for

to incur to supply the product or service his QV investment X1 created can induce these types of rival QV-investment responses because—by reducing its maker’s marginal costs—it will reduce the profits that some of his rivals would be able to realize by making use of their existing or particular possible future QV investments X2 by reducing the frequency with which and average amount by which those rival QV investments X2 would make their owner best-placed to supply particular buyers. And in appropriate circumstances an actor’s investment in production-process research that might discover a less-accident-and-pollution-cost-prone production process that was otherwise more expensive to use could produce the relevant rival QV-investment responses by reducing the profits that rivals could realize by using particular existing or possible future QV investments by making them liable for some of the accident or pollution costs generated by their production of the products or operation of the distributive outlets these QV investments created or would create for which they would not otherwise have been liable—*i.e.*, in negligence jurisdictions, by making it negligent for them to generate those costs because they have not chosen to use the discovered, less-accident-and-pollution-cost-prone production process (by putting them in a position in which they must pay a license fee to use the discovered, otherwise-more-expensive production process, make an otherwise unprofitable shift to the production of an alternative product-variant that they could produce without using the discovered process without being negligent on that account, make an otherwise-unprofitable shift to a less-accident-and-pollution-cost-prone location at which their rejection of the discovered process would not be negligent, withdraw or not make the QV investment in question, or pay damages equal to the accident and pollution costs they generated because they continued to produce their original product at their original location with their original production process).

The third point is that the *ex ante* belief of a QV investor or cost-reducing investor that his QV investment or cost-reducing investment may induce one or more of the investor’s rivals to withdraw an existing QV investment, may deter one or more such firms from making a new QV investment, and/or may induce one or more such firms to relocate an existing or future QV investment should lead him to conclude that his investment will increase the profit-yields of his other QV investments (if the investment to be characterized is a QV investment) or his QV

that buyer’s patronage exceeds the marginal (incremental) cost the best-placed seller would have to incur to supply that buyer (the best-placed seller’s buyer preference advantage *plus* the best-placed seller’s marginal-cost advantage).

investments (if the investment in question is a cost-reducing investment) for one of more of at least the following seven reasons:

- (1) in instances in which the investment in question is a QV investment that the investor believes may induce an established rival to withdraw an existing QV investment or deter an established or potential rival from introducing a new QV investment into the relevant area of product-space, because the rival QV investment the QV investment in question causes to be withdrawn or deters from being made reduced or would reduce the competitive advantages the QV investor has when selling his other products or operating his other outlets in part because the QV investment he made will be farther in product-space from the investor's other QV investments than the rival QV investment it would eliminate was or it would deter would be and in part because the QV investor will not subject his old QV investments to competition from his new QV investment when his new investment is worse-placed than his old investment to obtain the patronage of a particular buyer,
- (2) in instances in which the QV investment in question is a cost-reducing investment and the investor believes that it may induce the withdrawal of an existing, rival QV investment or deter a rival from making a new QV investment in circumstances in which the withdrawn or deterred rival QV investment will not be replaced, because the investor will believe that the withdrawn (deterred) QV investment reduced (would reduce) the competitive advantages he enjoyed when marketing the products or operating the outlets created by his QV investments,
- (3) in instances in which (A) the investment in question is a QV investment made by an investor who believes that it will replace the existing, rival QV investment it will cause to be withdrawn or the future rival QV investment it will deter and (B) the products or distributive services the relevant QV investments create are priced on an across-the-board-basis (are sold at a price that applies to all their potential purchasers), because the investor will believe that the QV-investment "substitution" in question will increase the prices that he (and his rivals) can obtain non-oligopolistically²³ by eliminating a rival that announced its prices later

²³ In my vocabulary, the highest non-oligopolistic price a firm can charge is the price it would find most profitable to charge if it knew that its rivals knew that it could not react to their responses to its initial price. For an elaboration and discussion of the determinants of (1) the height of a privately-best-placed seller's highest non-oligopolistic price to an individual buyer and (2) the height of the array of highest non-oligopolistic prices that a set of across-the-board-pricing rivals could charge, see Richard S. Markovits, *Oligopolistic Price and Oligopolistic Pricing: Their Conventional and Operational Definition*, 26 STAN. L. REV. 493 (1974). The definition of "oligopolistic pricing" that the above definition implies is not standard in the economics literature. Economists have never explicitly defined "oligopolistic pricing"—*i.e.*, have defined the concept only implicitly in use by labeling various pricing models "oligopolistic." Although many of the pricing models that economists denominate "oligopolistic" are oligopolistic in my sense—*i.e.*, do involve moves whose actor-perceived profitability depends on the actor's belief that his rivals responses will be affected by their realization that he can react to their responses, other pricing models that economists label "oligopolistic" do not involve the above kind of complex, two-step interdependence—*i.e.*, involve nothing more than an actor's realization that the pay-off to his move will be affected by the past or future decisions made by individual, identifiable rivals.

in the order of price announcements than would be in the joint interest of all the relevant sellers,²⁴

- (4) in instances in which (A) the investment in question is a cost-reducing investment made by an investor who believes that it may induce the withdrawal of an existing QV investment that will not be replaced and (B) the relevant products or distributive services are priced on an across-the-board basis, because the relevant investor will believe that his QV investment will eliminate a rival whose late pricing reduced the prices the relevant investor (and his rivals) could obtain non-oligopolistically (an outcome that will be most likely when the eliminated rival was privately-best-placed less often than it was slightly worse than privately-best-placed),
- (5) in instances in which the investment in question is a QV investment made by an investor who believes that it may induce the withdrawal of an existing, rival QV investment or deter the introduction of a new, rival QV investment or in instances in which the investment in question is a cost-reducing investment made by an investor who believes that its introduction will reduce equilibrium QV investment in the relevant area of product-space or lead to a change in the identity of the owners of an unaffected volume of QV investment in the relevant area of product-space, because the investor will expect that on those accounts the investment will tend to increase the amount of oligopolistic margins he can secure (say, by reducing the number of independent sellers in the relevant area of product-space that are second-placed or close-to-second-placed to supply his customers or by eliminating or preventing the entry of a rival whose presence would be unusually inimical to oligopolistic pricing of any kind),
- (6) in instances in which the investment in question is either a QV investment or a cost-reducing investment and the investor believes that it will induce a rival to relocate an existing QV investment or locate a new QV investment in the relevant area of product-space farther away from the investor's other QV investments than would otherwise have been the case, because the investor will perceive that the investment will increase the competitive advantages he enjoys when selling the products or distributive services his (other) QV investments create and/or will increase the oligopolistic margins he can secure when selling these products or distributive services (say, by reducing the number of rivals who would find it inherently profitable to beat some oligopolistic price he would otherwise have found profitable to charge), and

²⁴ For an explanation of why the height of the set of highest non-oligopolistic prices that could be charged by a group of sellers whose prices apply to all buyers will depend on the order in which they announce their prices, see *id.*, at 534-39.

- (7) in instances in which the investment in question is either a QV investment or a cost-reducing investment and the investor believes that it may replace an existing or future rival QV investment, deter a rival QV investment that would have raised total QV investment in the relevant area of product-space, and/or induced a rival to change the location of an existing or future QV investment, because the investor believes that in these ways the investment will reduce the profits his (other) QV investments lose because of retaliatory acts his rivals commit—because the amount by which he believes the profit-yields of his (other) QV investments will be reduced by retaliation against the investment in question, his use of that investment, and any rival-QV-investment location-shifts it engenders is lower than the amount by which he believes the profit-yields of his (other) QV investments would otherwise have been reduced by retaliation against the operation of the rival QV investments the relevant investment will induce to be withdrawn, the execution of the rival QV investments the relevant investment would deter, and/or the operation of the rival QV investments the relevant investment will deter.

The fourth point is that any time that an investor believes that his investment will increase the profit-yields of his (other) QV investments by eliciting one or more of the rival QV-investment responses described above he should believe on that account that he has a monopolistic investment incentive to make the investment in question (that the profitability of his investment will be inflated on that account). This conclusion reflects the fact that none of the ways in which such rival QV-investment responses will increase the investor's (other) QV investments' profit-yields suggests that on their account the investor's investment will be more allocatively efficient than it otherwise would have been. Thus, although the fact that an investor's QV investment is farther away in product-space from his other QV investments than was the rival QV investment that the investment in question causes to be withdrawn or than the rival QV investment the relevant investment deters from being executed would have been does imply that the QV investment in question will increase the investor's other QV investments' profit-yields, it has no implications for the allocative efficiency of the relevant QV investment relative to that of the QV investment it replaces: after all, the fact that the QV investment in question is farther away from the investor's other QV investments implies that it must be closer to (more "duplicative" of) the QV investments of the investor's rivals. Similarly, although the fact that a QV investor will not use his new QV investment to compete against his old QV investments does increase the amount by which the new QV investment will raise the profits yielded by his whole organization, it does not increase the allocative efficiency of the new QV

investment. Again, the fact that a cost-reducing investment will reduce the volume of rival QV investments against which the investor's QV investments have to compete will tend to increase their profit-yields, at least on otherwise-Pareto-perfect assumptions it will not suggest that the relevant cost-reducing investment is more allocatively efficient than it otherwise would have been. In the same vein, since there is no reason to believe that any tendency of an investor's QV or cost-reducing investment to induce the investor's actual and potential competitors to relocate their QV investments farther from his (other) QV investments will increase the allocative efficiency of his rivals' QV investments, the contribution that any such tendency of the investment to be characterized makes to the profit-yields of the investor's (other) QV investments will inflate its profitability. The same conclusion will obtain *a fortiori* for the other ways in which a relevant investment can increase the profit-yields of the investor's other QV investments: since all these ways involve the relevant investment's increasing the prices that the investor can obtain for his other products and many involve its increasing the prices that the investor's remaining (non-PPR) rivals can obtain for their products, the associated increase in the profit-yields of the investor's (other) QV investments that these possibilities entail will be generated by effects that make the investment's consequences less allocatively efficient than they otherwise would have been.²⁵ In these cases, the inflation of the private profits of the investment in question will be larger than the monopolistic investment incentive the investor had to execute it—will equal the sum of that incentive and the amount of misallocation it caused by producing the effects that made it more profitable than allocatively efficient.

The fifth and final point relates to why I have called the QV-investment incentives and cost-reducing-investment incentives just delineated *monopolistic* investment disincentives. In brief, I have done so because no investor who sells any product he produces in a perfectly-competitive situation will ever have such an incentive and because, *ceteris paribus*, the size of any such incentive an investor has will (roughly speaking) tend to increase with the percentage

²⁵ Even in our highly-Pareto-imperfect economy, decreases in price competition will tend to cause allocative inefficiency both in many different ways and on balance—*e.g.*, by increasing the extent of misallocation caused by labor-leisure decisions, production-process-research decisions, decisions to create more quality and variety. See Richard S. Markovits, *On the Economic Efficiency of Using Law to Increase Research and Development: A Critique of Various Tax, Antitrust, Intellectual Property, and Tort Law Rules and Policy Proposals*, 39 HARV. J. ON LEG. 63 (2002) and *The Allocative Efficiency and Overall Desirability of Oligopolistic Pricing Suits*, 28 STAN. L. REV. 45 (1976).

he owns of the QV investment in the area of product-space in which the QV investments whose profit-yields are increased are located.

I will now delineate an operational definition of “a predatory investment” that makes use of the concept monopolistic investment incentive. According to this definition, an investment is properly said to be predatory if and only if the investor perceived its *ex ante* profitability to be *ceteris paribus* critically increased (and hence *ceteris paribus* critically inflated) by the monopolistic investment incentive he had to make the investment. This definition of “a predatory investment” fits the general definition for predation because it deems an investment predatory if and only if

- (1) the relevant investor would not have found it *ex ante* profitable (worth making) but for its tendency to reduce the attractiveness of the offers against which his (other) QV investments have to compete (a fact that implies that the investment in question would be allocatively inefficient in an otherwise-Pareto-perfect economy even if it would not misallocate resources by reducing competition in the long run) and
- (2) the investor believed that the investment was rendered *ex ante* profitable all things considered by its tendency to increase the profits of the investor’s (other) QV investments by reducing the absolute attractiveness of the rival offers against which they had to compete (a tendency that in an otherwise-Pareto-perfect economy would if anything further reduce the relevant investment’s allocative efficiency).

III. Predatory QV Investments

Quality-or-variety-increasing (QV) investments may be predatory both (1) when they are made by an investor who believes *ex ante* that they may deter an actual or potential competitor to forego adding a new QV investment to the relevant area of product-space that will increase total QV investment in that space, induce such an actual or potential competitor to change the location of the additional QV investment it makes in the relevant area of product-space, and/or induce an established rival to change the location of an existing QV investment and (2) when they are made by an investor who believes *ex ante* that they may cause an established rival of the investor to withdraw an existing QV investment. Unfortunately from the perspective of those who like antitrust analysis to be simple,²⁶ QV investments can also not be predatory in both these

²⁶ For a critique of the claim that it would be both (1) legally valid and legitimate and (2) desirable from a policy perspective to simplify antitrust, see Richard S. Markovits, *The Limits to Simplifying Antitrust: A Reply to*

situations. Part III.A provides examples of predatory and non-predatory QV investments made by investors who have each of the preceding beliefs. Part III.B comments on

- (1) the courts' apparent belief that investments that would not be profitable unless they induced the withdrawal of an established investment will not violate the Sherman Act unless the investor conducts the relevant fight to the death unfairly by engaging in concrete acts that place its opponent at a competitive disadvantage that does not reflect the rival's allocative-efficiency inferiority and
- (2) the predatory character of the Alcoa investment in capacity that Judge Learned Hand concluded would make any monopoly power Alcoa possessed illegal under the Sherman Act.

Part III.C delineates and criticizes Ordoover and Willig's implicit definition of "predatory QV investment." And Part III.D discusses the evidence that would have to be adduced to demonstrate that a particular QV investment was and was not predatory and discusses the difficulties of discovering such evidence in a litigative context.

A. Some Examples of QV Investments That Are and Are Not Predatory

Part III.A provides and explains examples of QV investments that are and are not predatory. Because of the way in which the literature has developed, it focuses separately on situations in which the QV investor believes *ex ante* that (1) his QV investment may deter an established rival or potential competitor from introducing an additional QV investment that will increase total QV investment in the relevant area of product-space, may induce an established or potential competitor to change the location of a future QV investment that will increase total QV investment in the relevant area of product-space, or may induce an established competitor to change the location of an existing QV investment in the relevant area of product space and (2) his investment may induce an established rival of the QV investor to withdraw an existing QV investment from the relevant area of product-space.

Part III.A also illustrates the difference between (1) a predatory QV investment properly so-called and (2) a QV investment made by an investor who would not have found it (normally) profitable *ex ante* but for his belief that it might lead a rival to withdraw an existing QV investment from the relevant area of product-space, deter one or more established or potential

Professor Easterbrook, 63 TEX. L. REV. 41 (1984), criticizing then-professor and now-Judge Frank Easterbrook's proposals in *The Limits of Antitrust*, 63 TEX. L. REV. 1 (1984).

competitors from making an additional QV investment that would increase total QV investment in the relevant area of product-space, and/or induce an established or potential competitor of the investor to alter the product-space location of an existing or future QV investment in the relevant area of product-space. In the text that follows, the latter types of QV investments are called “limit investments.” In contexts in which the QV investor believes *ex ante* that his investment may deter his established or potential rivals from adding a new QV investment to the relevant area of product-space, the expression “limit investments” builds on the well-established economic expression “limit pricing,” which refers to the practice in which established sellers charge a lower price than they would otherwise perceive to be profitable to deter new entry.²⁷ Admittedly, it is something of a stretch to extend the definition of the concept “limit investment” to cover not only (1) investments that would not have been perceived by their maker to be *ex ante* profitable but for his perception that they may deter a new entry or an established-rival QV-investment expansion but also (2) investments that would not have been perceived by their maker to be *ex ante* profitable but for his perception that they may induce an established rival to withdraw an existing QV investment from the relevant area of product-space or *a fortiori* induce an established or potential competitor to change the product-space location of an existing or future QV investment. However, for convenience, I will define the concept “limit investment” to cover all these possibilities. In particular, I have adopted this usage because it enables me to express my criticism of Ordover and Willig’s analysis of predatory QV investments both in the context in which they analyzed this issue—namely, when the investment in question would lead to the withdrawal of an existing QV investment—and in the context that they ignored—namely, when the investment to be characterized would deter someone else from making a new QV investment in the relevant area of product-space or lead a rival of the investor to change the location of an existing or future QV investment—in the following way: Ordover and Willig have conflated “predatory QV investments” with “limit (QV) investments.”

²⁷ The standard reference for “limit pricing” theory is JOE S. BAIN, *BARRIERS TO NEW COMPETITION* (1956). For an argument that claims that limit pricing will rarely deter entry, will rarely be profitable even if it would deter entry, will virtually always be less profitable than other methods of deterring entry (such as limited investing) even if it is more profitable than allowing entry to occur, and will rarely if ever be practiced, see Richard S. Markovits, *Potential Competition, Limit Price Theory, and the Legality of Horizontal and Conglomerate Mergers Under the American Antitrust Laws*, 1975 WIS. L. REV. 658 (1975).

1. Some Examples of Non-Predatory/Non-Limit QV Investments, Non-Predatory/Limit QV Investments, and Predatory/Limit QV Investments Made by an Investor Who Believed *Ex Ante* That They Might Deter an Established or Potential Competitor From Making an Additional QV Investment, Induce a Rival to Change the Product-Space Location of a New QV Investment, and/or Induce a Rival to Change the Product-Space Location of an Existing QV Investment

CHART I: SOME EXAMPLES OF QV INVESTMENTS MADE BY AN INVESTOR WHO BELIEVES THAT THEY WILL DETER AN ESTABLISHED OR POTENTIAL COMPETITOR FROM MAKING AN ADDITIONAL QV INVESTMENT BUT WILL NOT INDUCE AN ESTABLISHED RIVAL TO WITHDRAW AN EXISTING QV INVESTMENT OR AN ESTABLISHED OR POTENTIAL RIVAL TO CHANGE THE LOCATION OF AN EXISTING OR FUTURE QV INVESTMENT THAT WILL BE NON-PREDATORY/NON-LIMIT QV INVESTMENTS, NON-PREDATORY/LIMIT QV INVESTMENTS, OR PREDATORY/LIMIT QV INVESTMENTS

COL/ROW	INVESTOR QV-INVESTMENT PROFIT-EXPECTATIONS	NON-PREDATORY, NON-LIMIT QV INVESTMENTS		NON-PREDATORY, LIMIT QV INVESTMENTS		PREDATORY, LIMIT QV INVESTMENTS
		IA	IB	IIA	IIB	III
(1)	INVESTOR-PERCEIVED NORMAL PROFITS	\$100	\$100	\$100	\$100	\$100
(2)	INVESTOR-EXPECTED NOMINAL PROFITS <i>PLUS</i> INVESTOR-EXPECTED NON-DISTORTING CONTRIBUTIONS TO PROFIT-YIELDS OF INVESTOR'S OTHER PROJECTS	\$150	\$150	\$110	\$110	\$ 90
(3)	AMOUNT BY WHICH THE INVESTOR EXPECTS THE QV TO REDUCE HIS OTHER QVS' PROFIT-YIELDS IN COMPARISON WITH THE <i>STATUS QUO ANTE</i> —THE MONOPOLISTIC QV-INVESTMENT DISINCENTIVE THE INVESTOR WOULD PERCEIVE THAT HE FACED IF HE DID NOT BELIEVE THAT THE QV WOULD DETER A RIVAL QV	\$ 30	\$ 30	\$ 30	\$ 30	\$ 30
(4)	PROFITS THE INVESTOR WOULD EXPECT THE QV TO YIELD IF IT WOULD NOT DETER A RIVAL QV	\$120	\$120	\$ 80	\$ 80	\$ 60
(5)	AMOUNT BY WHICH THE INVESTOR BELIEVES THE QV THE RELEVANT QV WILL DETER WOULD REDUCE THE INVESTOR'S OTHER QVS' PROFIT-YIELDS IN COMPARISON WITH THE <i>STATUS QUO ANTE</i>	\$ 20	\$ 40	\$ 20	\$ 40	\$ 50
(6)	QV INVESTOR'S PERCEIVED MONOPOLISTIC QV-INVESTMENT INCENTIVE	-\$ 10	+\$ 10	-\$ 10	+\$ 10	+\$ 20
(7)	ACTUAL PROFITS THE INVESTOR EXPECTS THE RELEVANT QV TO YIELD— <i>I.E.</i> , THE CONTRIBUTION THE INVESTOR EXPECTS THE QV WILL MAKE TO HIS OVERALL PROFITS	\$140	\$160	\$100	\$120	\$110

CHART I is designed to illustrate the conditions under which a QV investment made by an investor who believed *ex ante* that it might deter an established or potential competitor from

adding a new QV investment to the relevant area of product-space but did not believe that it might induce a rival to withdraw an existing QV investment or to change the product-space location of an existing or future QV investment would be a predatory QV investment and/or a limit QV investment. CHART I has seven rows and five columns.

Each row of CHART I provides a different type of profit information about the QV investments described in CHART I's columns. The entries in Row (1) indicate the amount of operating profits the relevant QV investor perceives *ex ante* the investment would have to be expected to yield on the weighted average to be just normally profitable—*i.e.*, just sufficiently profitable to make him willing to make the investment in question. For simplicity, CHART I assumes that that amount is the same (\$100) for each of the QV investments it describes. The entries in Row (2) indicate the amount of non-distorting profits the investor expects *ex ante* his investment to generate—the nominal profits he expects it to generate (the difference between the revenues he expects *ex ante* to realize by selling the product the investment will create or by operating the distributive outlet the investment will create and the variable²⁸ cost of producing the relevant product or running the relevant outlet) *plus* the non-distorting contribution he expects *ex ante* the investment to make to the profit-yields of his other QV investments by reducing the costs he has to incur to establish or operate them and/or increasing the demand that buyers have for the products or distributive services they enable him to supply. Row (3) indicates the amount by which the investor expects *ex ante* that the relevant QV investment would reduce his other QV investments' profit-yields both directly by taking sales from them and indirectly by inducing his rivals to alter their conduct if the investment in question would not deter any established or potential competitor from making a new QV investment (and would neither induce any such rival to relocate its future QV investments nor induce an established competitor to withdraw or relocate an existing QV investment). Row (4) indicates the profits the investor would expect *ex ante* the indicated QV investment to yield if it would not deter a rival QV investment (given that it would also not induce a rival to withdraw a QV investment or relocate an existing or future QV investment). The entry in Row (4) of any column equals the

28 I am implicitly counting the fixed cost of producing the product in question or building the outlet in question as part of the QV investment concerned. Nothing turns on this classification. If these fixed costs are counted as operating costs, operating profits will be lower but so too will be the magnitude of the QV investment in question and concomitantly the amount of operating profits that would constitute a normal rate of return on it.

entry in Row (2) *minus* the entry in Row (3) of that column. If the entry in Row (4) of any column equals or exceeds the entry in Row (1) of that column—*i.e.*, if the amount of profits the investor expected *ex ante* that the QV investment in question would yield if it would not deter a rival from making an additional QV investment (or induce a rival to withdraw an existing QV investment or to relocate an existing or future QV investment) was at least normal, the investment would not be a limit investment. The entries in Row (5) of CHART I indicate the amount by which the investor believes *ex ante* the rival QV investments his investment will deter would have reduced his other QV investments' profit-yields in comparison with the *status quo ante*. The entries in Row (6) indicate the monopolistic QV-investment incentive (or disincentive when they are negative) the investor believes *ex ante* he has to make the indicated QV investment. The entry in Row (6) of any column equals the entry in Row (5) *minus* the entry in Row (3) of that column: the QV investor will perceive himself *ex ante* to have a monopolistic QV-investment incentive to make a particular QV investment if and to the extent that he believes *ex ante* that the QV investment in question will reduce his other QV investments' profit-yields in distorting ways in comparison to the *status quo ante* by less than those profit-yields would otherwise be reduced by the rival QV investments he believes that his contemplated QV investment would or might deter. The entries in Row (7) of CHART I indicate the total amount by which the investor believes *ex ante* his contemplated QV investment will increase his organization's profits (gross of capital costs). The entry in Row (7) of any column equals the sum of the entries in Rows (2) and (6) of that column—the sum of the non-distorted profits the relevant QV investor expects *ex ante* the investment in question to yield and the distorting monopolistic QV-investment incentive he believes *ex ante* he has to make the investment in question. The entry in Row (7) of any column also equals the sum of the entries in Rows (4) and (5) of that column—the sum of the profits the relevant QV investor would expect *ex ante* the investment described to yield if it would not deter a rival from making a QV investment and the amount by which the QV investor expects *ex ante* the investment in question to raise his other QV investments' profit-yields by deterring a rival from making a QV investment. Presumably, the potential investor will make the investment whose profit information is discussed in any column if and only if the entry in Row (7) of that column is at least as high as the entry in Row (1) of that column—*i.e.*, if and only if he believes *ex ante* that the weighted-average-expected

profits he anticipates the QV investment's yielding at least equal the profits he believes *ex ante* will constitute a normal rate of return on it. On my account of the concept of "a predatory QV investment," a QV investment whose profit information is described in a column of CHART I will be predatory if and only if the entry in Row (2) of that column is lower than the entry in Row (1) of that column but the entry in Row (7) of that column equals or exceeds the entry in Row (1) of the column—*i.e.*, if and only if the investor's *ex ante* belief that the relevant QV investment would be at least normally profitable was critically affected by his belief that he had a monopolistic QV-investment incentive to make it (if and only if he would not have perceived the investment to be at least normally profitable but for his perception that it would yield him some purely private, distorting profits).

CHART I contains five columns. The information in each column describes a particular QV investment, defined by the various profit-expectations the investor who made it or contemplated making it had about it. The first two columns (IA and IB) provide information about QV investments that are neither predatory QV investments nor limit QV investments. The second two columns (IIA and IIB) provide information about QV investments that are not predatory QV investments but are limit QV investments. The last column (III) provides information about a QV investment that is not only a limit QV investment but also a predatory QV investment.

We should now be able to explain why the preceding characterizations of the five QV investments described in CHART I are correct. The QV investments whose profit data are presented in Columns IA and IB are not predatory QV investments because the profits the relevant investor would have expected them to yield *ex ante* if he did not think that he had a monopolistic QV-investment incentive to make them—the amounts indicated in Row (2)—are at least as high as (in fact, exceed) the amount of profits the investor perceived to be normal for the QV investments in question—the amounts indicated in Row (1). The QV investments described in Columns IIA and IIB are non-limit investments because, as a comparison of the entries in Rows (4) and (1) of Columns IIA and IIB respectively reveal, the relevant investor would have expected these QV investments to yield at least normal profits *ex ante* even if he had not believed that they would or might deter a rival QV investment in the relevant area of product-space ($\$120 > \100). I chose to provide two examples of non-predatory, non-limit QV investments to emphasize the

fact that a QV investor's *ex ante* belief that he has a monopolistic QV-investment incentive to make the investment in question is not a sufficient condition for its being either a predatory or a limit QV investment. Thus, although the investor whose investment is described in Column IB believed *ex ante* he had a monopolistic QV-investment incentive to make it, that investment is neither a predatory nor a limit QV investment.

The QV investments described in Columns IIA and IIB are non-predatory, limit QV investments. They are limit QV investments because, as a comparison of the entries in Rows (4) and (1) of Columns IIA and IIB respectively reveal, the investor would not have expected *ex ante* that these investments would yield at least normal returns had he not expected them to deter the investor's rivals from making an additional QV investment ($\$80 < \100). Note that the limit-investment status of the QV investments covered by Columns IIA and IIB does not depend on whether their deterrent effect critically reduces the monopolistic QV-investment disincentive the relevant investor believed he faced *ex ante*—say, from $(-\$30)$ to $(-\$10)$, as in Column IIA—or converted what he perceived *ex ante* would otherwise have been a monopolistic QV-investment disincentive into a monopolistic QV-investment incentive—say, changed the relevant distortion from $(-\$30)$ to $(+\$10)$, as in Column IIB. A QV investment is a limit investment if and only if the investor-*ex ante*-expected profit-consequences of its deterrent effect—indicated in Row (5)—raise the actual profits the investor expected the investment to yield *ex ante*—indicated in Row (7) and equal to the entry in Row (4) plus the entry in Row (5)—from below normal to normal or above normal—*i.e.*, cause the entry in Row (7) to equal or exceed the entry in Row (1) despite the fact that the entry in Row (4) is lower than the entry in Row (1). On the other hand, the QV investments described in Columns IIA and IIB are not predatory QV investments because the investor would have expected them *ex ante* to yield at least normal returns even if the investor did not believe *ex ante* he had a monopolistic QV-investment incentive to make them. In both cases, this conclusion is guaranteed by the fact that the profits that the investor would have expected them to yield *ex ante* if the investor did not think he had a monopolistic QV-investment incentive to make them—the entry in Row (2), $\$110$ —were at least normal—equaled or exceeded the entry in Row (1), $\$100$. I chose to include two examples of non-predatory, limit QV investments in CHART I to emphasize the fact that a QV investor's *ex ante* belief that he had a monopolistic QV-investment incentive to make the investment in question is neither a

sufficient condition for the investment's being predatory nor a necessary condition for its being a limit investment. I will now discuss each of these points in turn.

As Column IIB manifests, so long as any monopolistic QV-investment incentive the investor believed *ex ante* that he had to make the relevant QV investment is not critical to its investor-perceived *ex ante* profitability—so long as the investor-*ex ante*-expected legitimate profits indicated in Row (2) are at least normal, the QV investment will not be predatory. Thus, although the investor whose *ex ante* perceptions are recorded in Column IIB believed he had a \$10 monopolistic QV-investment incentive to make the QV investment described in Column IIB, that investment was not predatory because its investor-perceived *ex ante* profitability was not critically affected by this belief: the fact that the investor perceived *ex ante* that the investment would yield undistorted profits (\$110) that were at least normal (in this case, exceeded \$100) implies that the investor would have perceived the investment to be (at least normally) profitable *ex ante* even if the investor believed *ex ante* that its tendency to deter a rival QV investment would do no more than eliminate or adequately reduce the monopolistic QV-investment disincentive the relevant investor would otherwise have had to make it (as did the non-predatory, limit investment described in Column IIA).

The QV investment described in Column IIA illustrates the fact that an investor's *ex ante* belief that he had a monopolistic QV-investment incentive to make a particular QV investment is not a necessary condition for its being a limit QV investment. So long as the investor would not have *ex ante* perceived his investment to be at least normally profitable had he not believed it would deter a rival QV investment (or induce a rival to withdraw an existing QV investment or relocate an existing or future investment), the investment is a limit investment even if the investor did not believe *ex ante* that he had a monopolistic QV-investment incentive to make it. Thus, although the investor who made the QV investment described in Column IIA did not believe *ex ante* that he had a QV-investment incentive to make it (indeed, believed *ex ante* that he faced a QV-investment disincentive of \$10 on the investment in question), that investment was a limit investment because he would have perceived it to be subnormally profitable *ex ante* but for his expectation that it would or might deter an established-rival QV-investment expansion or potential-competitor new entry: because the entry in Row (4)—\$80—is lower than the entry in Row (1)—\$100.

The QV investment described in Column III is a predatory, limit investment. A comparison of the entries in Rows (4) and (1) of Column III reveal that it is a limit investment (since \$60 is less than \$100). The entries in Rows (1), (2), (6), and (7) reveal that it is a predatory QV investment. Specifically, this conclusion reflects the facts that the undistorted profits the investor expected the investment to yield *ex ante*—\$90, see the entry in Row (2)—were subnormal—were less than \$100, see the entry in Row (1)—while the actual profits the investor expected the investment to yield *ex ante*—\$110, see the entry in Row (7)—were rendered at least normal by the monopolistic QV-investment incentive the investor believed *ex ante* that he had to make the investment—\$20, see the entry in Row (6). Column III manifests two things about predatory QV investments. First, a QV investor’s *ex ante* belief that he has a monopolistic QV-investment incentive to make a particular QV investment is a necessary condition for its being predatory. Second, a QV investment’s being a limit investment is also a necessary condition for its being a predatory QV investment: unless the QV investor’s *ex ante* belief that the investment would be profitable was critically affected by his *ex ante* belief that the investment might deter a rival QV investment (or might cause a rival to withdraw an existing QV investment or relocate an existing or future QV investment), it could not be critically affected by his *ex ante* belief that he would on one or more of these accounts have a monopolistic QV-investment incentive to make the investment in question.

As I indicated at the beginning of this section, CHART I was developed to illustrate the analysis of the character of a QV investment made by an investor who believed *ex ante* that it might deter an established or potential competitor from introducing an additional QV investment into the relevant area of product-space. I would now like to indicate how one would have to alter CHART I to make it apply instead to a QV investment made by an investor who believed *ex ante* that it might induce an established or potential competitor to alter the location of a QV investment it might introduce into the relevant area of product-space. Formally, the only required changes would be in the headings of three rows of CHART I. The most important change is in the heading to Row (5). In essence, the heading in CHART I’s Row (5) is “the amount by which the QV investor in question believed *ex ante* that the relevant QV investment would increase his other QV investments’ profit-yields in comparison with the *status quo ante* if it would not decrease those profit-yields itself in various distorting ways in comparison with the

status quo ante by deterring an established or potential competitor from introducing an additional QV investment into the relevant area of product-space.” To cover the situation in which the QV investor believed *ex ante* not that the relevant QV investment would deter a rival QV investment but that it would induce the rival to make a different QV investment from the one it would otherwise have made, CHART I would have to be altered so that the heading of Row (5) was “the amount by which the QV investor in question expected *ex ante* that the relevant investment would increase his other QV investments’ (weighted-average-expected) profit-yields by inducing his rivals to alter the product-space location of the new QV investment(s) they would introduce into the relevant area of product-space.” The other two required heading changes are completely superficial. The heading to Row (4) would have to be altered to refer to the weighted-average profits the relevant QV investor would have expected *ex ante* the QV investment in question to yield if he did not believe *ex ante* that it would might induce a rival to change the product-space location of any additional QV investment it introduced (or might deter a rival from introducing such an investment or induce a rival to withdraw or relocate an existing QV investment). And the last bit of the heading to Row (3) would have to be altered in the same way as the heading to Row (4) would have to be altered.

Formally, these changes would not require any alteration in the preceding analysis. The QV investor’s monopolistic QV-investment incentive would still equal the entry in Row (5) *minus* the entry in Row (3); the entry in Row (7) will still equal both the entry in Row (2) *plus* the entry in Row (6) and the entry in Row (4) *plus* the entry in Row (5); at least if one expands the concept of a limit QV investment even more contestably to cover situations in which the investor’s *ex ante* perception that his QV investment is at least normally profitable is critically affected by his *ex ante* belief that it may induce a rival to alter the location of a future QV investment, the QV investment will still be a limit QV investment (in this extended sense) if and only if the entry in Row (4) is lower than the entry in Row (1) while the entry in Row (7) equals or exceeds the entry in Row (1); and the QV investment will still be a predatory QV investment if and only if the entry in Row (2) is lower than the entry in Row (1) while the entry in Row (7) equals or exceeds the entry in Row (1).

Of course, if both CHART I and this revised variant are filled in with numbers that reflect the realities of actual QV investments that fall into the category they describe, the numbers that

would appear in various cells of the altered CHART I would tend to be quite different from their CHART I counterparts, and the percentage of the investments that the revised chart contains that would be predatory would be much lower than the counterpart percentage of CHART I. The crucial difference is that, *ceteris paribus*, the entries in Row (5) of the revised CHART I will be much lower than the entries in the Row (5) of CHART I: a QV investment that deters a rival QV investment will increase the profit-yields of the investor's other QV investments far more on this account than a QV investment that induces a rival to relocate its additional QV investment will increase on that account the profit-yields of the other QV investments of the investor whose QV investment is to be characterized; indeed, since QV investors will generally tend to locate their additional QV investments far away in product-space from their existing projects, a QV investor's new QV investment may tend to decrease his other QV investments' profit-yields to the extent that it induces one or more of his rivals to change the location of their new QV investments since the investor's new QV investment will tend to make it less profitable for them to locate near it than otherwise would be the case and therefore relatively more profitable for them to locate their new project closer to the investor's other QV investments than would otherwise be the case. I should add that when a QV investor (or a cost-reducing investor) believes *ex ante* that his investment will reduce his other QV investments' profit-yields by inducing a rival to relocate an existing QV investment or to locate a future QV investment closer in product-space to his other QV investments, that fact will affect his *ex ante* perceived monopolistic investment incentive. Obviously, the fact that the entry in Row (5) of the revised CHART I will be lower than its CHART I counterpart and may even tend to be negative implies that the entries in Row (6) of the revised CHART I will be less positive than their CHART I counterparts (indeed, may even tend to be negative): a QV investor who believes *ex ante* that his investment will induce his rival to relocate a future QV investment is far less likely to believe he has a monopolistic QV-investment incentive to make the investment in question than is a QV investor who believes *ex ante* that his investment will deter a rival from making a QV investment altogether. Moreover, when members of these two sets of investors believe that they have a monopolistic QV-investment incentive to make the investment in question, members of the former set will tend to believe that they have a larger incentive than members of the latter set will tend to believe themselves to have. Clearly, *ceteris paribus*, these conclusions imply that the

investments of QV investors who believe *ex ante* that the investments in question might induce a rival to relocate a future QV investment will be less likely to be predatory than the investments of QV investors who believe that the investments in question might deter a rival from adding a QV investment to the relevant area of product-space—*i.e.*, imply that QV investors who believe *ex ante* that their QV investment may induce an established or potential competitor to alter the location of a future QV investment are less likely to have their *ex ante* perception that their investment would be at least normally profitable be critically affected by an *ex ante* perception that they had a monopolistic QV-investment incentive to make it.

Three additional points should be made at this juncture. First, the immediately-preceding analysis will also apply *mutatis mutandis* to any QV investment made by a QV investor who believes *ex ante* it may induce an established rival to alter the product-space location of an existing QV investment of a rival rather than a new QV investment of a rival.

Second, with appropriate changes in the relevant row-headings, the preceding analysis will also apply to a QV investment made by a QV investor who believes *ex ante* that it may alter two or more of the various types of rival decisions just analyzed—the decision to add a new QV investment to the relevant area of product-space, to change the location of such a new QV investment, or to change the location of an existing QV investment. (For these purposes, it does not matter whether the investor believes *ex ante* that the investment to be characterized will create a possibility that two or more of these types of decisions will actually be altered *ex post* or creates some possibility that any one of these three types of rival decisions may be altered.)

Third, I want to repeat an old refrain. Regardless of the type of rival QV-investment decision a QV investor believes *ex ante* the investment to be characterized may alter, my conclusion that a QV investment should be deemed predatory if and only if the investor's *ex ante* conclusion that it is at least normally profitable is critically affected by the monopolistic QV-investment incentive he believes *ex ante* he has to make it implies that a QV investment will be predatory and Sherman-Act violative if and only if (1) it should be expected to be allocatively inefficient in an otherwise-Pareto-perfect economy (its expected undistorted profits were subnormal) and (2) it was made despite this fact because the investor believed *ex ante* that its execution might increase his other QV investments' profit-yields for reasons that do not

contribute to its allocative product—reasons that suggest if anything that its execution will be less rather than more allocatively efficient.

2. Some Examples of Non-Predatory/Non-Limit QV Investments, Non-Predatory/Limit QV Investments, and Predatory/Limit QV Investments Made by an Investor Who Believed *Ex Ante* That They Might Induce an Established Rival to Withdraw an Existing QV Investment

In my judgment, although most QV investments are made by investors who believe *ex ante* that their execution may deter their rivals from making an additional QV investment in the relevant area of product-space and many QV investments are made by investors who believe *ex ante* that their execution may induce their rivals to change the product-space location of their existing or future QV investments, few QV investments are made by investors who believe *ex ante* that their execution may induce an established rival to withdraw an existing QV investment. Nevertheless, I will focus separately on the determinants of the character of QV investments made by investors who think they may lead a rival to withdraw an existing QV investment. Primarily, I do so because, as I have already suggested and Section D of Part III discusses, the leading economics article on predatory (QV) investments focuses exclusively on QV investments made by investors who believe *ex ante* that they may or will lead an established rival to withdraw an existing QV investment.

Fortunately, no real additional work has to be done to illustrate the circumstances in which QV investments made in these circumstances will be predatory QV investments or will be “limit QV investments” if one defines this latter expression problematically to cover *inter alia* any QV investment made by an investor who would not have perceived it *ex ante* to be at least normally profitable had he not believed that it might lead an established rival to withdraw an existing, rival QV investment. In particular, CHART I can be adapted to cover this type of investment through an alteration that is analogous to the alteration that made it apply to any QV investment made by an investor who believed *ex ante* that it might induce a rival to alter the product-space location of a new or existing QV investment. In particular, to make CHART I cover the kind of investment with which this subpart is concerned, one need only change the headings of Rows (3), (4), and (5). In particular, the heading of Row (3) must be altered to “the amount by which the QV investment in question would reduce the profit-yields of the investor’s

other QV investments in one or more distorting ways both during the period in which it co-existed with the rival investment whose withdrawal it would induce and after the relevant rival investment was withdrawn”; the heading in Row (4) must be altered to “the profits the investor would expect the relevant QV investment to yield *ex ante* if he did not believe that it would cause a rival QV investment to be withdrawn (or induce a rival to change any other QV-investment decisions)”; and the heading in Row (5) must be altered to “the weighted-average-expected amount the investor believed *ex ante* that the existing QV investment the investment in question would cause to be withdrawn originally reduced the profit-yields of the investor’s other QV investments both directly and by altering his remaining rivals’ decisions *plus* the weighted-average-expected amount the investor believed *ex ante* that his *de facto* substitution of the investment in question for the rival investment it might cause to be withdrawn would increase his other QV investments’ profit-yields by reducing the extent to which his remaining rivals competed against his remaining QV investments because (rightly or wrongly) they perceived his investment to be predatory.”

None of these alterations would change either the relationship between the entries in the various rows of the chart nor chart-related conditions under which the QV investments it describes would be predatory QV investments and/or limit QV investments if the latter expression is defined expansively to cover the type of situation on which this subpart is focusing. Thus, the entry in Row (4) would still equal the entry in Row (2) *minus* the entry in Row (3); the entry in Row (6) would still equal the entry in Row (5) *minus* the entry in Row (3); the entry in row (7) would still equal the entry in Row (2) *plus* the entry in Row (6) or the entry in Row (4) *plus* the entry in Row (5); the QV investment described in any column will still be a limit QV investment if and only if the entry in Row (4) is lower than the entry in Row (1) but the entry in Row (7) is higher than the entry in Row (1); and the QV investment described in any column will still be a predatory QV investment if and only if the entry in Row (2) is lower than the entry in Row (1) while the entry in Row (7) equals or exceeds the entry in Row (1). Column IIA of the revised CHART I described earlier in this subpart manifests the conclusion that a QV investor need not believe *ex ante* that he has a monopolistic QV-investment incentive to make a QV investment that he believes might induce the withdrawal of a rival QV investment for the QV investment that is to be characterized to be a limit QV investment. Column IB manifests the fact

that a QV investor's *ex ante* belief that he has a monopolistic QV-investment incentive to make a QV investment that he believes might induce the withdrawal of a rival QV investment is not a sufficient condition for the QV investment's being a limit QV investment. Columns IB, IIB, and III manifest the conclusion that the investor's *ex ante* perception that he had a monopolistic QV-investment incentive to make a QV investment that he believed *ex ante* might induce the withdrawal of a rival QV investment is a necessary but not a sufficient condition for such an investment's being predatory. And, taken as a whole, the appropriately revised version of CHART I also manifests the conclusion that—when the relevant QV investment is believed by its maker to have some potential to induce the withdrawal of a rival QV investment—its being a limit QV investment is a necessary but not a sufficient condition for its being a predatory QV investment.

So much for the formalities. I should not close this section without pointing out that the numbers that appear in Rows (5) and (6) of the chart designed to cover QV investments that their makers believe *ex ante* might lead to the withdrawal of an existing, rival QV investment are not likely to be systematically critically different from their CHART I counterparts—*i.e.*, from the entries in a chart that covers QV investments believed by their makers to have at least some potential to deter rivals from making additional QV investments. QV investors who think that their investment may induce the withdrawal of an existing, rival QV investment are as likely to believe *ex ante* that they have monopolistic QV-investment incentives as are QV investors who believe *ex ante* that their investment may deter a rival from making a new QV investment, and the size of the monopolistic QV-investment incentives that QV investors who believe *ex ante* that their investment may induce the withdrawal of an existing, rival QV investment is likely to be as large as the monopolistic investment incentives that QV investors who believe that their investment may deter a rival from making a new QV investment are likely to believe *ex ante* that they have. I would therefore expect that the percentage of rival-QV-investment-withdrawal-inducing QV investments that are predatory will be at least as high as the percentage of rival-new-QV-investment-detering QV investments that are predatory.

B. The Courts' Position on the Sherman-Act Legality of (Predatory Character of?) QV Investments

The heading has a question-mark inside the parentheses because the courts' examination of the Sherman-Act legality of various QV investments has often not focused on whether the investments under review could properly be deemed predatory. Nevertheless, it seems fair to say that both of the two canonical opinions in federal antitrust cases that involve QV investments seem to have reached incorrect conclusions about the circumstances in which QV investments violate the Sherman Act or cause the investor's position to be Sherman-Act violative and that the more recent federal opinion that addresses this issue is also highly unsatisfactory.

I have already referred to the first of the two canonical federal QV-investment cases, *United States v. Aluminum Co. of America*. As I indicated, in that case, Judge Learned Hand argued that the fact that Alcoa's QV investments in capacity deterred others from constructing aluminum-refining capacity made Alcoa's allegedly monopolistic position illegal under § 2 of the Sherman Act.²⁹ I hasten to admit that Hand's opinion does not explicitly find that Alcoa's capacity investments were themselves illegal (predatory) or, indeed, were even "not honestly industrial," whatever that might mean. However, Hand did say that Alcoa's decisions to build new capacity were "effective exclusions,"³⁰ and, in antitrust jargon, the statement that a choice is "exclusionary" does imply that it is illegal. Certainly, many antitrust scholars and lawyers suspect that Hand believed that Alcoa's capacity-expansions were themselves illegal. True, Hand might have cited these Alcoa decisions simply to show that Alcoa's high market share was "not inevitable," but one could make the same point by citing Alcoa's refusal to divest itself of existing capacity. Unless Alcoa's decisions to expand were predatory, how could one justify a finding that they rather than its decision not to divest itself of existing plant rendered its position illegal under the Sherman Act? In any event, nothing in the *Alcoa* opinion suggests that Alcoa's capacity-expansions were even non-predatory limit investments, much less predatory limit investments. I have no doubt that Alcoa's capacity expansions did deter rivals from building aluminum-refining plants and were made more profitable by that fact. Indeed, this would be true even if Alcoa had no monopolistic QV-investment incentive to expand its capacity. But nothing

29 See 148 F.2d 416, 431 (2d Cir. 1945). For other cases that seem to have raised similar issues, see *American Tobacco Co. v. United States*, 328 U.S. 781 (1946) and *DuPont (Titanium) v. Federal Trade Commission*, 488 F. Supp. 747 (1980).

30 *Id.*

in the opinion suggests that (1) Alcoa would not have found its expansions profitable even if they had not deterred any rival QV investment, (2) Alcoa actually had a monopolistic QV-investment incentive to make the QV investments in question (though I suspect it did), or (3) any monopolistic QV-investment incentives Alcoa had to make the relevant investments critically affected Alcoa's *ex ante* perception that they were at least normally profitable (which I doubt they did). To the extent that Hand's opinion in *Alcoa* can be read to assert the proposition that any QV investment that deters a rival QV investment is predatory and Sherman-Act violative on that account, the opinion is wrong. To the extent that Hand's opinion in *Alcoa* can be read to assert that Alcoa's capacity-expansions were predatory in the correct sense of "predatory," that assertion is unfounded and (in my judgment) highly unlikely to be true.

The second canonical federal antitrust case on QV investments is *Union Leader*,³¹ a case involving a decision by a newspaper to publish a second paper in a particular town that had its own local journal in circumstances in which the profitability of the relevant investment depended on its driving the entered town's original newspaper out of business. The court assumed that in such fight-to-the-death cases the defendant's conduct will violate § 2's prohibition of monopolizing or attempting to monopolize if and only if it conducted the relevant fight to the death unfairly—*i.e.*, by making competitive moves other than the QV investment itself that gave it a competitive (survival) advantage unrelated to its relative allocative efficiency.³² This position ignores the possibility that the QV investment may itself be predatory—that the investor's *ex ante* belief in the investment's normal profitability was critically affected by his perception that the substitution of the investment in question for his exited rival's investment would increase the profit-yield of the investor's other QV investments without increasing the allocative efficiency of his operations (for example, because the investor's new QV investment was further away in product-space from his other QV investments than was the rival QV investment whose exit his QV investment would induce).

31 *Union Leader Corp. v. Newspapers of New England*, 180 F. Supp. 125 (D. Mass. 1959), *aff'd in part and rev'd in part*, 284 F.2d 582 (1st Cir. 1960), *cert. denied*, 365 U.S. 833 (1961). I should add that *Union Leader* has spawned a large number of related "unfair competition" decisions.

32 For a discussion of such unfair competition cases, see Richard S. Markovits, *OLIGOPOLISTIC AND PREDATORY CONDUCT* (unpublished book manuscript available from the author, 2004).

The third, more recent case that involves the possible predatory character of a QV investment is *Transamerica Computer Co. v. IBM*.³³ In this case, the court was asked to make its assessment of the predatory character of IBM's pricing and investment decisions depend *inter alia* on the impact of the relevant choices on the profits yielded by IBM's other products—*i.e.*, on the so-called “impact costs” of these decisions. According to the court, when the decision to be evaluated was the introduction of a new product, the relevant “impact costs” were “the reduction in anticipated future profits of an existing product line caused by the introduction of a new product line.”³⁴ If this calculation is understood to encompass the possibility that a seller's new investment might increase the profit-yields of its old QV investments and to involve consideration of the way in which the new product-line would affect the investor's old product-lines' profit-yields not only directly but also by affecting various rivals' relevant pricing and investment decisions, this proposal would have correctly articulated an essential part of the correct approach to assessing the predatory character of the decision to introduce the new product-line. Unfortunately, the court decided to reject this proposal—in particular, to exclude evidence on any determinant of such “impact costs” as a matter of law—justifying its decision on the grounds³⁵ that

- (1) the consideration of such evidence “could be a disincentive to research and innovation,”³⁶
- (2) such evidence is speculative,³⁷
- (3) impact costs are not reflected in conventional profit and loss statements,³⁸ and

33 459 F. Supp. 626 (1978).

34 *Id.* at 631.

35 *Id.*

36 In fact, it would deter R&D that might lead to predatory QV investments but encourage the predator's rivals to do R&D.

37 In fact, such evidence is no more speculative than the other kinds of evidence the courts admit in such cases.

38 This accounting practice is totally irrelevant to whether courts should consider these costs, given the fact that, regardless of the way in which accounts are kept, businessmen clearly do consider such costs.

- (4) consideration of such evidence would lead courts to require businesses to maximize their profits, which would cause them to ignore their social responsibilities.³⁹

In short, this more recent opinion rejected a proposed approach to the predatory QV-investment issue that at least was a step in the right direction.

C. Ordover and Willig's Position on Predatory QV Investments

In a highly-regarded article,⁴⁰ Janusz Ordover and Robert Willig argued that innovative QV investments that induce a rival to withdraw an established product should be deemed predatory and Sherman-Act violative if and only if their profitability was critically affected by the rival-product exit they induced. In my judgment, this conclusion would be wrong even if it were recouched as a subjective, probabilistic test of predation and legality: the fact that the maker of an innovative QV investment would not have perceived it to be *ex ante* profitable had he not believed that the investment might induce a rival to withdraw an existing product (the fact that the QV investment in question was a limit investment in the extended sense of that expression) does not make the investment predatory because it does not imply that the relevant profitability prediction was inflated in my sense, much less that it was *ceteris paribus* critically inflated in my sense of that expression. An innovative QV investment will be predatory if and only if its investor-perceived *ex ante* profitability was critically inflated by the possibility that it might increase the profit-yields of the investor's other QV investments by substituting the investor's investment for the rival investment it would drive out.

³⁹ Five objections can be made to this contention. First, the consideration of such costs would actually militate against businesses' increasing their profits by engaging in predation. Second, the prohibition of businesses' sacrificing short-run profits to obtain profits in the long run by deterring entries or expansions does not prohibit them from sacrificing profits in the public interest. Third, there is no reason to believe that predators will spend their ill-gotten gains in the public interest. Fourth, even if they do, the tendency of the exclusion of such evidence to increase the expenditures of this kind that the predators make would be more or less offset by the predation's tendency to decrease the expenditures of this kind that would otherwise have been made by the predator's victims had they profited from making the QV investments the predator's predatory QV investments deterred. Fifth, the impact of an antitrust ruling on the extent to which its addressees make charitable contributions or other types of non-profitable expenditures in the public interest is irrelevant to its correctness in any event.

⁴⁰ Janusz Ordover and Robert Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L.J. 8 (1981).

Viewed as an analysis of predatory QV investments, Ordover and Willig's article is also deficient in three other respects. First, they give no reason for focusing exclusively on *innovative* QV investments and, in fact, the proper definition of a predatory QV investment does not depend on whether or not it is technologically or commercially innovative. Second, Ordover and Willig give no reason for their decision to focus exclusively on QV investments that drive existing QV investments out, and, I suspect, the number of predatory QV investments that drive an existing QV investment out is far smaller than the number of predatory QV investments that deter the investors' established and potential competitors from adding a QV investment to the relevant area of product-space. If Ordover and Willig extended their analysis to cover the latter type of QV investments, their conclusion would be that any such investment that is a limit investment (that would not have been made had the investor not believed that it would deter a rival QV investment) is predatory. I have already explained why this conclusion is wrong. Third, and admittedly tangentially, Ordover and Willig are simply wrong when they assert that the QV investments they deem predatory will not be "worth their cost"—by which I assume they mean "will be allocatively inefficient."⁴¹ On the applicable otherwise-Pareto-perfect assumption, the facts that they think make a QV investment predatory do not even imply that the profitability of the investments in questions will be inflated, much less critically inflated. Indeed, although, by definition, the profitability of any predatory QV investment that is properly so-called will be *ceteris paribus* critically inflated by the monopolistic QV-investment incentive the investor believed he had to make it, that fact implies only that such investments would be allocatively inefficient in an otherwise-Pareto-perfect world. In our actual, highly-Pareto-imperfect world in which a relevant investor may underestimate the profits his investment would yield if the investor did not have a monopolistic QV-investment incentive to make it, buyers of the product the relevant QV investment created may underestimate its value to them or derive buyer surplus from purchasing it, the cost of creating and using a QV investment may be inflated by the fact that the resources that would be used for these purposes would be withdrawn from the creation of an alternative QV investment that would have created a product that would have been sold by a non-discriminator who faced a downward-sloping demand curve, and the creation and use of the relevant QV investment and the consumption of the good its use produces may

41 *Id.* at 8-9.

generate external benefits or reduce external costs, some QV investments that are properly deemed predatory may be “worth their cost” in the sense of increasing allocative efficiency.

D. The Structure of Predatory QV-Investment Litigation

As Ordover and Willig pointed out, “even genuine innovations—new products that in some ways are superior to existing products in the eyes of both engineers and consumers—are in some circumstances anticompetitive”⁴²—*i.e.*, predatory. However, as the preceding discussion demonstrates, the predatory character of a QV investment depends on whether the decision to make it was critically affected by the investor’s *ex ante* belief that he had a monopolistic QV-investment incentive to make it—*i.e.*, by the investor’s *ex ante* perception that the investment would increase the profits yielded by his other QV investments in ways that did not contribute to his organization’s allocative efficiency by a sufficient amount to make normally or supernormally profitable an investment that he would otherwise have perceived to be less than normally profitable. In a few cases, a private plaintiff or the State may be able to establish a *prima facie* case that a firm’s QV investment was predatory without itself generating cost and revenue data that establish the requisite probability that it would not have been profitable but for the monopolistic QV-investment incentive the investor had to make it by putting into evidence defendant memoranda, audio or audio-visual recordings of defendant statements of anti-competitive intent or guilt, and/or eye-witness testimony indicating that the defendant intended to or actually did execute a predatory QV investment. As Ordover and Willig note: “the defendant’s investment planning process may be the most useful source of data concerning the firm’s expectations. Decisions to commit substantial funds to R&D projects [or QV investments in general] are likely to be supported by internal analyses of prospective costs and financial benefits.”⁴³ Since internal financial analysts have a stake in giving accurate, honest reports and company files are not always purged of tell-tale evidence (and even when they are, original memos appear surprisingly often in an orderly manager’s personal files or the hard-drive of the company’s computer system), internal memoranda and e-mails may demonstrate that the alleged predator’s QV-investment decision was critically affected by his hope and expectation that it

42 *Id.*

43 *Id.* at 27.

would or might alter one or more rivals' QV-investment decisions in ways that would increase the profit-yields of his other QV investments. Of course, the courts will have to be sensitive to the possibility that an actual predator may include misleading reports in his files to justify his behavior. To prevent itself from being misled in this way and to handle cases in which the available internal memos are not conclusive (and testimony by corporate whistle-blowers or repentant or fearful, deal-making wrongdoers is not available or decisive), the courts will have to rely on independently-collected evidence of the actual profit -performance of the QV investment under suspicion.

More specifically, when defendant memos and whistle-blowing testimony are not decisive, I would recommend that predatory-QV-investment trials be structured in the following way. In the first stage, the private plaintiff or the State should be required to submit evidence demonstrating that the amount of nominal profits the QV investment under suspicion yielded did not constitute a normal rate of return on the investment in question. Then, in the second stage, the defendant should be given the opportunity to exonerate himself by establishing the requisite probability that (1) he did not in fact have any monopolistic QV-investment incentives to make the suspected investment, (2) the nominal operating profits were in fact normal or would be normal over the course of the QV investment's life, (3) the sum of (a) the nominal operating profits the QV investment would yield over its life *plus* (b) the non-distorting contribution it made to the profits yielded by the QV investor's other QV investments constituted a normal rate of return on the QV investment in question, or (4) although the QV investment would not yield a normal rate of return in legitimate ways, it was mistaken or tortious (motivated by spite) rather than predatory. I will now comment briefly on each of those four possibilities.

Unfortunately, I suspect that defendants will usually not be able to exonerate themselves by demonstrating that they had no monopolistic QV-investment incentive to make the QV investment under suspicion. Although sellers sometimes make QV investments that do not deter or eliminate rival QV investments, I assume that virtually all QV investments that are attacked as being predatory will have had such an effect. And although it is conceivable that some such investments would not yield monopolistic QV-investment-incentive advantages, it is relatively unlikely that this would be the case. Moreover, it will be extremely difficult for the defendant to prove that it had no monopolistic QV-investment incentives even if it did not: to offer such

proof, the defendant would have to describe the characteristics of the product or outlet whose introduction his QV investment forestalled, to explain why it would not have been best-placed or second-placed to serve many of his old products' or outlets' customers, and why its presence would not have encouraged other firms to compete more aggressively than they did after he made his investment. I suspect, therefore, that even innocent defendants will find it difficult to exonerate themselves in this way.

The second way in which a defendant might try to exonerate himself would be to argue that the nominal operating profits his QV investment would yield over its lifetime would in fact be normal even if it did not produce allocatively-valuable cost-related and/or demand-related joint economies that increased the profit-yield of his other QV investments. Two claims are likely to figure prominently in this connection. First, the defendant might argue that the QV investment's future returns were expected to be higher than its current or recent past returns—that demand for the product or outlet in question was expected to rise either because consumers were in the process of learning about its advantages or because overall demand for the products in the relevant area of product-space was expected to rise during its lifetime and/or that the company had adopted policies that had reduced the QV investment's short-run yield to a misleadingly low level (had charged prices that were lower than the prices that would maximize the profits the investment would yield in the short run in order to promote the product or had engaged in other promotional activities that are expensed in the short run but expected to bear fruit in the long run). Second, the defendant might try to combat the other side's operating-profit claim by arguing that the prosecutor or plaintiff had overestimated the normal rate of return for an investment of the kind in question. In many cases, defendants may be able to exonerate themselves on the basis of these arguments alone.

However, when the defendant cannot establish his QV investment's non-predatory character by showing that it would yield a normal amount of nominal operating profits on its own over its useful life, he may still be able to exonerate himself with a third argument—*viz.*, by showing that the investment would yield a normal amount of legitimate profits if one considered its non-distorting effect on the profits yielded by the other QV investments he owns. I have already explained that a QV investment's overall legitimate profits will exceed its nominal operating profits to the extent that it increases the profits the investor realizes on his other QV

investments by improving his other products' or outlets' images, by giving him the advantages of a full line, or by generating joint-cost economies. I suspect that in most cases the defendant will have to submit engineering, financial, and/or market-research reports or put final consumers or distributors on the stand to establish these claims: evidence proving that the profits the QV investor realized on his other QV investments increased after he made the investment under suspicion will not be very persuasive both because these products' profits could increase for many other reasons than the ones he was alleging and, more particularly, because the relevant profits may have increased because of the very facts the other side alleged gave him a monopolistic QV-investment incentive to make the investment in question.

Fourth, and finally, if the defendant cannot establish that his QV investment was expected to or actually did generate a normal amount of profits independent of any monopolistic QV-investment incentives he had to make it, the defendant could still exonerate himself from any wrongdoing by showing that his QV-investment decision had been a mistake and could exonerate itself under the antitrust laws by showing that he had undertaken the investment “out of pure spite” and had not reduced competition as a result. The defendant could try to establish that his QV investment had been a mistake in two different ways—indirectly by showing that he did not have any or any significant monopolistic QV-investment incentive to make it or directly by delineating the error that he had made and providing evidence in support of his claim that he had made the error in question. I have already indicated how difficult it will be for a defendant to establish that he had no monopolistic QV-investment incentive to make the QV investment under suspicion. Moreover, even if the defendant can establish that he had made an error and that the operative monopolistic QV-investment incentives were too low to make his investment privately profitable overall, he might not be able to succeed on this basis, for even in this case his investment may have been predatory—*i.e.*, the monopolistic QV-investment-incentives he thought he had *ex ante* may have critically affected his estimate of the investment's attractiveness, given his misperception of the profits the suspected investment would yield in other ways. Still, there will be situations in which a defendant can fully exonerate himself by showing that he mistakenly believed that the suspected QV investment would yield normal profits for legitimate reasons over and above any monopolistic QV-investment incentives that might be operative. An accused predatory QV investor may also be able to exonerate himself

from antitrust liability by showing that he had consciously made a QV investment he knew would not be profitable or anti-competitive out of spite—in order to injure a particular business rival for reasons unrelated to any monetary rewards he could reap by doing so. A defendant who wanted to rely on this type of pure-tort admission would probably need to submit evidence demonstrating that (1) he hated the party whose QV investment the suspected investment deterred or eliminated and (2) he did not have a significant monopolistic QV-investment incentive to make the suspected investment because he had reason to believe that the target either would not exit or, if it did exit, would be quickly replaced by an equally-competitive rival.

Obviously, it will not be easy for an alleged predatory QV investor to establish any of the defenses that would overcome the *prima facie* case that a private plaintiff or the State could make out by proving that the nominal book profits yielded by the allegedly-predatory QV investment were subnormal. However, this conclusion does not imply that plaintiffs or the State will find it easy to win predatory-QV-investment cases when they cannot rely on defendant-memoranda, notes of meetings, audio or audio-visual recordings, and/or eyewitness testimony to establish the defendant's predatory intent or admissions of guilt. In such situations, a private plaintiff or the State will usually find it extremely difficult to calculate the nominal supernormal profits the suspected QV investment yielded. Even if, as I am proposing, one does not require the plaintiff to measure the synergistic effects of the allegedly-predatory QV investment, insuperable obstacles will often be posed by the difficult task of measuring the magnitude of the allegedly-predatory QV investment and of determining the normal rate of return on the investment in question.

IV. Predatory Marginal-Cost-Reducing Investments and Predatory Accident-and-Pollution-Cost-Reducing PPR

Investments in plant-modernization, investments in new-plant construction, investments in PPR that is designed to discover production processes whose use will reduce some cost other than the amount of accident and pollution costs the production of the relevant product generates, and investments in PPR that is designed to discover a less-accident-and-pollution-cost-prone production process may all be non-predatory. More specifically, investments in plant-modernization and investments in the construction of new plants that are intended to replace old production facilities will be non-predatory if the people who make the investments in question

expected *ex ante* that the sum of (1) the cost savings these investments would enable them to achieve by reducing the variable cost they had to incur on their pre-investment outputs and (2) any additional profits the investments would enable them to secure (even if they did not induce the withdrawal of any established QV investment, deter the introduction of any new QV investment, or induce the relocation of any existing or future rival QV investment) by rendering it profitable for the investor to make additional sales by reducing the investor's marginal costs would constitute at least a normal rate of return on the investment in question (which in the case of new-capacity construction would be reduced by the post-investment value of the facility that could be retired). Investments in both types of PPR described above will be non-predatory if made by investors who will use any resulting discoveries exclusively themselves if the amount of profits they expected *ex ante* the relevant project to generate (1) by reducing the total cost the discoverer had to incur to produce his pre-discovery output of the product to whose production the discovery relates and (2) by enabling the discoverer to increase his profits by expanding his output by decreasing his marginal costs under the conditions described above would constitute at least a normal return on the PPR investment in question. Finally, investments in both types of PPR described above will be non-predatory if made by investors who will license others to use their discovery as well as use it themselves if the amount of profits they expect *ex ante* that the project will generate for them in the above two ways and by enabling them to collect license fees will constitute at least a normal rate of return on the PPR investment in question.

However, although no-one has yet recognized this possibility, all four of these types of non-QV investments may also be predatory. In particular, all four of these types of non-QV, cost-reducing investments will be predatory if and only if the relevant investor's *ex ante* perception that they would yield him at least normal profits was critically affected by his belief that he had a monopolistic investment incentive to make them (that they would increase the profit-yields of his QV-investment projects by causing an established product-rival to withdraw one or more existing QV investments, by deterring an established or potential competitor from introducing a new QV investment into the area of product-space in which the product whose production would be affected by the non-QV investment in question is located, and/or by inducing an established or potential competitor to change the product-space location of an existing or future QV investment in the relevant area of product-space). Part IV delineates the

conditions under which the above types of non-QV investments will be predatory and discusses the chances of winning Sherman-Act suits against companies that make these types of predatory investments.

- A. The Conditions Under Which Various Non-QV Investments Directed at Decreasing the Investor's Marginal Costs or Increasing His Rivals' Average Total and/or Marginal Costs Will Be Predatory
 - 1. Investments in Plant-Modernization, in New-Plant Construction, and in PPR That Is Not Designed to Discover Less-Accident-and-Pollution-Cost-Prone Production Processes

Investments of the various types listed in the heading will be predatory if and only if the investor's *ex ante* belief that the investment would yield at least normal profits was critically affected by his belief that it might increase his profits by driving a rival out, deterring a rival from introducing a new QV investment that would increase total QV investment in the relevant area of product-space, or inducing a rival to change the location of an existing or future QV investment by lowering the investor's marginal costs and thereby critically reducing the profits the existing or future rival QV investment that would be withdrawn, deterred, or moved would generate—*i.e.*, by making the investor privately-best-placed to supply buyers the relevant rival QV investment was or would otherwise have been best-placed to supply (by eliminating the profits the relevant rival QV investment originally generated or would otherwise have generated on sales to these buyers) and reducing the competitive advantage the relevant rival QV investment had or would have in relation to buyers it continued to be or would still be best-placed to supply after the non-QV investment in question was executed (thereby reducing the profits the relevant rival QV investment would yield on sales to the buyers in question). Since the extra profits the non-QV investment would enable its maker to realize on his QV-investment projects by causing his rivals to withdraw, not make, or alter the location of their QV investments would have no allocative-efficiency gain counterpart in an otherwise-Pareto-perfect world, their existence implies that the profitability of the relevant non-QV investment will be inflated on their account—that they give the relevant investor a monopolistic cost-reducing-investment incentive to make the non-QV investment in question. Of course, although the non-QV investor's *ex ante* perception that he had a monopolistic cost-reducing-investment incentive to make the investment in question is a necessary condition for its being predatory, it is not a sufficient condition: for the relevant investment to be predatory, the investor's *ex ante* belief that he had a monopolistic investment incentive to make it must have critically affected his *ex ante* perception that it would be at least normally profitable.

Although an investor could conceivably find it profitable for predatory reasons to make a marginal-cost-reducing investment of any of the three kinds on which we are currently focusing despite the fact that the investment in question increased the average total cost the investor had to incur to produce his pre-investment output, I suspect that most predatory investments in plant-modernization, new-plant construction, and PPR that is not directed at reducing accident-and-pollution costs will reduce the investor's relevant average total costs at the same time that they reduce his marginal costs. Obviously, predatory investments of these kinds that increase the investor's relevant average total costs will be far easier to recognize as predatory than (the far greater number of) predatory investments that reduce the investor's average total costs at the same time that they reduce the investor's marginal costs.⁴⁴

2. PPR Into Less-Accident-and-Pollution-Cost-Prone Production Processes

The second set of non-QV, cost-reducing investments that can be predatory will be predatory under different conditions from those in which the investments discussed in the preceding section are predatory. In particular, investment in PPR that is designed to discover less-accident-and-pollution-cost-prone production processes that are otherwise more expensive (that reduce average total cost only if that concept is defined to include the accident and pollution costs generated) will be predatory if and only if

- (1) the research is designed to discover
 - (A) a less-accident-and-pollution-cost-prone production process that is otherwise-more-expensive and
 - (B) whose non-use once it was discovered would be negligent (since its use would reduce traditional private accident and pollution costs by more than it would increase other private variable costs of production),
- (2) the investor in the relevant PPR produces the product to whose production the discovery relates,

⁴⁴ The text has ignored a second set of circumstances in which the types of non-QV investments on which this section is focusing will be predatory—namely, when the investor's *ex ante* perception that the investment will yield at least a normal rate of return is critically affected by his belief that it might prevent the rivals whose profits it reduces from competing with the investor in production-process research. The non-QV investments in question might generate this effect by depriving its victims of profits they would have used to finance the relevant research (when outside capital is more expensive or impossible to secure), by causing it to exit and thereby depriving it of the production experience that would increase the cost-effectiveness of its PPR, and/or by causing it to exit and thereby depriving it of contacts with its product-rivals that might increase its ability to market its PPR discoveries to them. I have omitted this possibility from the text because it seems to me to be relative remote.

- (3) the tort liability of both the investor and his product-rivals for the production-process decisions they make when producing the product to whose production the relevant PPR project relates is governed by negligence,
- (4) *ex ante* the investor would not have perceived the relevant PPR project to be profitable if he assumed that he would not price the right to use any related discovery predatorily (that he would charge those license fees that would maximize his profits if one ignored their impact on his rivals' QV-investment decisions) but for his belief that the research might increase the profits his QV investments generate by driving a product-rival out, by deterring an established or potential competitor from introducing a new QV investment that would raise total QV investment in the relevant area of product-space, or by inducing an established or potential competitor to change the location of an existing or future QV investment—*i.e.*, if he assumed that he would not price the use of his discovery predatorily, the investor's *ex ante* weighted-average-expected prediction of the license fees the PPR would enable him to secure *plus (minus)* any additional profits the discovery might enable him to realize because its use would raise his marginal costs by less (more) than it would raise his rivals' marginal costs *minus* any loss the discovery would impose on him by raising his and his rivals' marginal costs if it would not affect his rivals' QV-investment decisions was lower than the investor's *ex ante* estimate of the amount of profits that would be normal on the PPR investment in question.

As I have already indicated, someone who was considering making an investment in PPR that might lead to the discovery of an otherwise-more-expensive but accident-and-pollution-cost-reducing production process whose non-use would be negligent might expect that the investment in question would increase his QV investments' profit-yields by inducing his rivals to alter their QV-investment decisions even if he would not price the right to use the relevant discovery predatorily. This conclusion reflects the fact that the discovery would put the investor's rivals in a position in which they must choose among (1) continuing to operate in the same way but paying damages equal to the accident and pollution losses they could have prevented by shifting to the discovered production process, losses for which they would not have been liable pre-discovery, (2) avoiding the additional liability by paying a license fee to use and actually using the otherwise-more-expensive production process, (3) shifting to an otherwise-less profitable but less-accident-and-pollution-cost-prone location at which their rejection of the discovered process would not be negligent, (4) shifting to the production of an otherwise-less-profitable product-variant which could not be produced through the discovered process or legally need not be

produced through that process (for example, because its production was sufficiently less-accident-and-pollution-cost-prone for the discovered process to make critically smaller difference in the amount of such costs its production generated), or (5) shutting down altogether.

If the PPR induced the fifth of these responses, it would increase the profit-yields of the PPR investor's QV investments in both the short run and the long run if one assumes, either (A) that if the investor did nothing to prevent this result the withdrawn rival QV investment would not be immediately replaced by an alternative rival QV investment that would reduce those yields by as much as the withdrawn QV investment reduced them or (B) that the investor could profit by forestalling such rival replacement-investments by making a limit investment.

If the investment in PPR induced the third or fourth of these responses, it would increase the profit-yields of the PPR investor's QV investments in the short run (roughly speaking) if the new product-space locations were farther from his QV investment than were the old ones and might do so even more in the long run if the associated reduction in his rivals' profits compared to the *status quo ante* made it less than normally profitable for one or more rivals to continue operating in the long run.

If the PPR induced the second of these responses, it would tend to increase the profit-yield of the PPR investor's QV investments in the short run to the extent that the non-predatory license fee had a per-use-charge component or to the extent that (license-fee payments aside) the extra cost of using the discovered process was higher for the discoverer's rivals than for the discoverer and would tend to increase the profit-yield of the PPR investor's QV investments by even more in the long run to the extent that the loss the discovery imposed on his rivals made it profitable for them to exit in the long run.

The PPR would be unlikely to induce the first of these responses, given that in an otherwise-Pareto-perfect world this response would be unprofitable for the rival who made it. However, if a rival did respond in this way to the relevant discovery, the investment that led to it would tend to increase the profit-yields of the QV investments of the PPR investor in the short run by raising his rivals' marginal costs by more than his use of his discovery raised his own marginal costs and might increase the profit-yields of his QV investments in the long run even

more by reducing the relevant rivals' operating profits sufficiently to cause them to exit in the long run.⁴⁵

B. The Practicability of Winning Suits Directed at Predatory Investments in Plant-Modernization, New-Plant Construction, and PPR of Different Sorts

As I have already indicated, to my knowledge, no-one has written about the possibility that investments in plant modernization, new-plant construction, and PPR may be predatory. Admittedly, however, this fact may reflect the relevant scholars' perception that predation cases directed at such investments would be impracticable rather than their failure to realize that predatory acts of this kind are sometimes committed. In any event, it may be useful to close this Article by discussing the practicability of winning cases against the kinds of non-QV, cost-reducing investments on which Part IVA focused.

Although I fully acknowledge the difficulty of proving that a non-QV, cost-reducing investment was predatory, the task is significantly more practicable than one might suppose. In some cases, a private plaintiff or the State may be able to prove that a defendant has made a predatory marginal-cost-reducing investment or a predatory investment in accident-and-pollution-cost-reducing production-process research from written documents or oral testimony that establishes the defendant's predatory intent. For example, in some cases, a private plaintiff or the State may be able to obtain memos to its researchers or sales personnel that explicitly state the defendant's intention to drive one or more of its rivals out. In other cases, the plaintiff or the State may be able to rely on

- (1) head-office memos directing its researchers to discover production processes that will reduce marginal cost even if their use will raise average total cost,
- (2) engineering-department memos indicating that a planned or completed new plant or planned or completed plant-remodeling would or did increase average total cost at the same time that it would or did reduce marginal cost or would or did reduce average operating total cost by too little to have been profitable even given

⁴⁵ PPR investments that are predatory because this second set of conditions is satisfied could be said to be predatory because they "raise rivals' costs." For a general discussion of the various ways in which business actors may act predatorily by making choices whose expected profitability depends on their raising rivals' costs, see Thomas Krattenmaker and Stephen Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price*, 96 YALE L. J. 209 (1986). I should add that investments in the kind of PPR on which this section is focusing may also be predatory because its investor perceived *ex ante* profitability was critically affected by its tendency to reduce the competition the investor would face in PPR. For an explanation, see note 44 *supra*.

the short-run gains any resulting reduction in marginal costs would or did enable the company to realize if it would not induce a rival to exit or deter a rival from making a new QV investment.

- (3) reports from the defendant's research division about the probability that anyone else would discover a less-accident-and-pollution-cost-prone method of producing the defendant's product,
- (4) defendant *ex ante* financial analyses of the expected profitability of a suspect PPR project that was designed to discover a less-accident-and-pollution-cost-prone production process that incorporated the findings of the report just described and concluded that the project would not be normally profitable if it did not affect rival QV-investment decisions—that the difference between the license fees the project should be expected on the weighted average to enable the defendant to collect and the profits the discovery would cost him by putting him and his rivals in a position in which they must use the discovered, otherwise-more-expensive production process to escape tort liability would not constitute a normal rate of return on the investment if there were no prospect of the discovery's inducing a rival to exit, deterring a rival from making an additional QV investment, or inducing a rival to change the location of an existing or future QV investment to one that was less-accident-and-pollution-cost-prone and that happened to be less competitive with the defendant's QV investments, and
- (5) *ex post* financial analyses of the actual outcome of a completed PPR project that led to the discovery of a "safer" production process revealing that the net non-inflating profits it yielded did not constitute a normal rate of return on the investment in question.

Although one might think that such memos would be destroyed prior to or early on in any litigative process, companies often have one or more executives or employees who do not follow shredding instructions for any one of a number of reasons: because they fear that such evidence-destruction is illegal, because they disapprove of their company's predatory conduct or fear the legal repercussions of being found to have participated in such conduct and want to distance themselves from it, because they like to keep complete files for the sake of doing so, or because they are disorganized or careless. Moreover, to the extent that the relevant memos were typed onto computers and circulated through e-mail, they may be recoverable because it is far more difficult to remove traces of them from a computer system than many seem to suppose.

Moreover, even if such written evidence is not available, a private plaintiff or the State may be able to substantiate its claim through oral testimony—from innocent, whistle-blowing company employees, from guilty employees who are contrite or hope to obtain more favorable

treatment from the prosecution by confessing and cooperating, by customers of the predator who have been told of the company's plan by indiscrete sales personnel (perhaps after the customers expressed surprise at the price concessions they were offered), or by the targets of the predation, who may have been told of the company's plans in the course of negotiations to buy them out at distress prices. Of course, the evidentiary value of whistle-blower testimony will be reduced if the whistle-blower is a disgruntled employee or former (fired) employee, the testimony of participants in the conduct in question who are trying to secure a better deal is open to question on that account, and the testimony of the buyers and rivals of the alleged predator who are trying to secure damages from him is undermined by the financial incentive they have to lie. Still, in many circumstances, such oral testimony will be at least somewhat persuasive.

Even if no such evidence can be obtained from others, the private plaintiff or the State may be able to generate the necessary evidence itself by commissioning

- (1) accounting studies of the cost of the non-QV investments alleged to be predatory and economic studies of the normal rate of return on these investments,
- (2) engineering studies of the effect of a discovered non-accident-and-pollution-cost-reducing production process, a plant remodeling, or new-plant construction on the defendant's average total and marginal cost,
- (3) market research on the effect of any reduction in the defendant's marginal costs on the sum of the alleged target's competitive advantages,
- (4) engineering or accounting studies of the additional cost to the discoverer and his alleged target of using the discovered less-accident-and-pollution-cost-prone production process,
- (5) accounting studies of the supernormal profits the alleged target realized by producing the product whose withdrawal the defendant allegedly targeted prior to the defendant's execution of the allegedly predatory non-QV investment, and
- (6) business studies of
 - (A) the speed with which the target's withdrawn QV investment would be replaced by another investment made by a rival of the defendant if the defendant did not replace that investment himself,
 - (B) the difference between the amount by which any rival replacement-investment would reduce the defendant's returns and the amount by which the alleged target's withdrawn investment originally reduced the defendant's returns, and

- (C) the ability of the defendant to profit by replacing the alleged target's withdrawn QV investment with a new QV investment of his own.

Admittedly, if the foregoing types of evidence do establish that the investment alleged to be predatory would not have yielded a normal rate of return had it not induced one or more rivals of the investor to withdraw a QV investment, deter a rival from making a new QV investment, or induce a rival to relocate an existing or future QV investment, the defendant will still be able to exonerate himself by demonstrating that *ex ante* he mistakenly believed that the relevant investment's normal profitability did not depend on its eliciting such rival responses or, perhaps, that it was motivated by spite rather than by the desire to profit by reducing the competition he faced (a fact that would not be legally relevant if the defendant would have engaged in the relevant conduct for predatory reasons even if he had not been motivated by spite).

I certainly do not claim that it will be easy or cheap for a private plaintiff or the State to prove that a non-QV investment of any type on which Part IV has focused was predatory. But I think that in some instances it will be possible and practicable to pursue predation suits against companies that have made investments of these types. Certainly, I do not think that the difficulty of winning such suits can justify the literature's failure to notice that investments of these kinds may be predatory.

CONCLUSION

This Article has established the following eight conclusions. First, if the Sherman Act's test of legality is properly articulated and the concept of predatory conduct is properly defined, predation will emerge as one type of conduct that violates the Sherman Act. Second, an investment that increases the quality or variety of the investor's products or distributive outlets or increases the average speed with which the investor can deliver its product throughout a fluctuating-demand cycle (what I call a QV investment) may be predatory—in particular, will be predatory if and only if the *ex ante* belief of the investor who made it that the investment would be at least normally profitable was critically affected by his *ex ante* perception that he had a “monopolistic QV-investment incentive” to make it (was critically affected by his perception that it would increase the profits yielded by his other QV investments in ways that did not increase its allocative efficiency). Third, courts have misunderstood the circumstances in which QV

investments will be predatory—in effect, have found some such investments predatory for reasons that do not establish their predatory character (simply because they have deterred rivals from making QV investments) and have ignored the possibility that QV investments that can be profitable only if they cause an established QV investment to be withdrawn may be predatory in themselves, independent of the way in which the associated “fight-to-the-death” is conducted. Fourth, the economists who have tried to define predatory QV investments (A) have offered a definition that focuses on only one of the situations in which QV investments may be made—*viz.*, the situation in which the investment in question will induce the withdrawal of a rival QV investment, (B) have misdefined the circumstances in which in those situations QV investments will be predatory—*viz.*, have claimed that a QV investment made in such a situation will be predatory if and only if its profitability was critically affected by its causing a rival of the investor to withdraw a QV investment, and (C) have offered a definition of QV investment in the situation they addressed whose extension to situations in which the QV investment might deter an established rival QV-investment expansion or a new entry conflates predatory investments properly so-called with the core case of what might be labeled “limit investments” (investments made by investors who would not have perceived them to be [at least normally] profitable but for their belief that the investments would deter a rival QV-investment expansion or entry). Fifth, non-QV, marginal-cost-reducing investments in plant-modernization, new-plant construction, and production-process research (PPR) that is not designed to discover a less-accident-and-pollution-cost-prone production processes will sometime be predatory and sometimes not be predatory—in particular, will be predatory if and only if the investor’s *ex ante* perception that the investment in question would be at least normally profitable was critically affected by his perception that he might have a monopolistic cost-reducing-investment incentive to make it (that it might increase his profits by [A] reducing his marginal costs, relatedly [B] reducing the competitive advantages and profit-yields of one or more existing or future QV investments of a rival, and relatedly [C] inducing an established rival to withdraw or relocate an existing QV investment, deterring an actual or potential competitor from making a new QV investment that would increase total QV investment in the relevant area of product-space, and/or inducing an actual or potential competitor to relocate a future QV investment within the relevant area of product-space). Sixth, investments in PPR that is designed to discover less-accident-and-

pollution-cost-prone production processes may also be predatory or not predatory—in particular, will be predatory if and only if the investor’s *ex ante* perception that they will yield at least normal profits was critically affected by his belief that he had a monopolistic investment incentive to make it (that it might increase his QV investments’ profit-yields by increasing a rival’s costs or reducing a rival’s profits by placing the rival in a position in which to escape additional tort liability it must use a discovered otherwise-more-expensive but accident-and-pollution-cost-reducing production process, shift to an otherwise-less profitable but less-accident-and-pollution-cost-prone location, shift to the production of an otherwise-less-profitable but less-accident-and-pollution-cost-prone product-variant, or shut down altogether)—*i.e.*, put one or more rivals in a position in which it becomes profitable for them to exit, to reject making a QV investment that would add to total QV investment in the relevant area of product-space in this way, and/or to move an existing or future QV investment to a less-accident-and-pollution-cost-prone location in the relevant area of product-space that happens to be farther away from the PPR investor’s QV investments. Seventh, no-one has yet recognized the possibility that the types of non-QV, cost-reducing investments described in the preceding two sentences may be predatory. Eighth, although predation cases directed at QV investments and non-QV, cost-reducing investments of the types discussed will be difficult to win, there is some reason to believe that they will not always be impracticable.

In the process of executing the analyses that generate these conclusions, this Article develops and employs some concepts and distinctions that are not standard in the literature—*inter alia*, the concept of a monopolistic investment incentives, which plays a critical role in the definition of all types of predatory investments, and the distinctions among QV investments, investments in PPR of two different sorts, and non-PPR, cost-reducing investments of various types, which structure the analysis of the various sets of conditions in which investments will be predatory. This Article is valuable not only because it improves our understanding of predatory investments but also because it validates these concepts and distinctions by demonstrating their usefulness.