ARTICLES

Predatory Pricing: Strategic Theory and Legal Policy

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We have received valuable comments from legal workshop participants at Boston University Law School, Harvard Law School, Yale Law School, and from economic workshop participants at the Antitrust Division, U.S. Department of Justice, Canadian Competition Bureau, European Centre for Advanced Research in Economics (ECARE), European Summer Symposium on Economic Theory, New York University School of Management, New Zealand Institute for Antitrust Law and Economics, Princeton University, and Tilburg University Centre for Economic Research. We have received insightful comments from many individuals, including Ian Ayres, Kyle Bagwell, William Baumol, Lucien Bebchuk, Mathias Dewatripont, Richard Craswell, Aaron Edlin, Einer Elhauge, Douglas Greer, Herbert Hovenkamp, Vic Khanna, Louis Kaplow, Alvin Klevorick, John Lott, Barry Nalebuff, Jim Meeks, Patrick Rey, Glen Robinson, Steven Salop, Alan Schwartz, Marius Schwartz, Robert Skitol, Dan Vincent, Greg Werden, and Bobby Willig. We thank LeeAnne Baker, Jeremy Bartell, Gretchen Elizabeth Joyce, and Chad Porter for dedicated and resourceful research assistance, and Boston University Law School and Tilburg University for research support.

INTRODUCTION

Predatory pricing poses a dilemma that has perplexed and intrigued the antitrust community for many years. On one hand, history and economic theory teach that predatory pricing can be an instrument of abuse; on the other hand, price reductions are the hallmark of competition and the tangible benefit that consumers perhaps most desire from the economic system.

The dilemma is intensified by recent legal and economic developments. Judicial enforcement is at a low level following the Supreme Court's most important predatory pricing decision in modern times, *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*[1] Indeed, since *Brooke* was decided in 1993, no predatory pricing plaintiff has prevailed on the merits in the federal courts. At the same time, modern economic analysis has developed coherent theories of predation that contravene earlier economic writing claiming that predatory pricing conduct is irrational. More than that, it is now the consensus view in modern economics that predatory pricing can be a successful and fully rational business strategy. In addition, several sophisticated empirical case studies have confirmed the use of predatory pricing strategies.[2] The courts, however, have failed to incorporate the modern writing into judicial decisions, relying instead on earlier theory that is no longer generally accepted.

Growing market concentration, fueled by the current merger wave, has further increased the tension between judicial policy and modern economic theory. Notwithstanding the low level of judicial support—or perhaps because of the legal vacuum this has created—government enforcement concern with predatory pricing is at its highest level in many years. The Department of Transportation has recently issued proposed predatory pricing guidelines, antitrust enforcement agencies have ongoing investigations, and private antitrust actions continue to be litigated despite their apparently dim prospects. Moreover, the growing importance of intellectual property challenges predatory pricing rules designed for tangible goods markets. This is illustrated by the *Microsoft* case, where the alleged predatory pricing involves intellectual prop-

1. 509 U.S. 209 (1993).

2. *See infra* text accompanying notes 22-33.

erty.[3] This article argues that the dilemma and tensions confronting predatory pricing enforcement can be resolved—and a coherent approach can be developed—by basing legal policy, at least in part, on modern strategic theory.

Part I describes the uncertain foundations of present policy, which is based on the judicial belief that predatory pricing is extremely rare, if not economically irrational conduct—a belief that is in tension with modern economic analysis. Part II discusses current enforcement policy and its evolution, culminating in the Supreme Court's *Brooke* decision and, more recently, in proposed government guidelines for airline predation. Part III outlines our proposed strategic approach, setting forth elements to guide analysis in predatory pricing cases, including rules for prima facie liability and an expanded efficiencies defense. Parts IV through VI develop criteria for identifying predatory strategies, which are then applied to financial market predation in Part IV, to reputation effect predation in Part V, and to test market and cost signaling predation in Part VI. Part VII evaluates possible objections and counterstrategies.

I. THE TENSION BETWEEN CURRENT LEGAL VIEWS AND MODERN ECONOMIC THEORY

A powerful tension has arisen between the foundations of current legal policy and modern economic theory. The courts adhere to a static, non-strategic view of predatory pricing, believing this view to be an economic consensus. This consensus, however, is one most economists no longer accept.[4] The tension is reflected not so much in the legal rule, which at least in theory would allow arguments based on modern strategic analysis, but rather in an extreme judicial skepticism against predatory pricing cases that has led to the summary dismissal of almost all cases since *Brooke*. In order to understand this judicial skepticism and the tension it creates with modern economics, one must examine its source, evaluate its merit, and appreciate the challenge posed by modern analysis. This requires first a statement of what is meant by predatory pricing.

Predatory pricing is defined in economic terms as a price reduction that is profitable only because of the added market power the predator gains from eliminating, disciplining, or otherwise inhibiting the competitive conduct of a rival or potential rival.[5] Stated more precisely, a predatory price is a price that is

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3. *See* United States v. Microsoft Corp., 84 F. Supp.2d 9, 12 (D.D.C. 1999).

4. Prior papers illustrating judicial evaluation of predatory pricing in light of modern strategic theory include: Richard Craswell & Mark R. Fratrik, *Predatory Pricing Theory Applied: The Case of Supermarkets v. Warehouse Stores*, 36 CASE W. RES. L. REV. 1, 3-8 (1985); Alvin K. Klevorick, *The Current State of the Law and Economics of Predatory Pricing*, 83 AM. ECON. REV. 162, 166 (1993); Janusz A. Ordover & Garth Saloner, *Predation, Monopolization, and Antitrust*, *in* 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 537, 581-90 (Richard Schmalensee & Robert D. Willig eds., 1989) (citing earlier work by Oliver Williamson and others).

5. *See* William Inglis & Sons Baking Co. v. ITT Continental Baking Co., 668 F.2d 1014, 1035 (9th Cir. 1981) ("[T]o establish predatory pricing a plaintiff must prove that the anticipated benefits of defendant's price depended on its tendency to discipline or eliminate competition and thereby enhance

profit-maximizing only because of its exclusionary or other anticompetitive effects. The anticompetitive effects of predatory pricing are higher prices and reduced output—including reduced innovation—achieved through the exclusion of a rival or potential rival.[6] But, such a definition does not state an operational legal rule.[7] It is therefore necessary to base the legal rule on measures such as cost, market structure, and recoupment.

A key premise in developing an enforcement policy for predatory pricing is the expected frequency and severity of its occurrence. That determination necessarily rests on the twin guides of empirical evidence and economic theory. In *Matsushita Electric Industrial Co., Ltd. v. Zenith Radio Corp.*[8] and *Brooke*, the Supreme Court found that predatory pricing was speculative and "inherently uncertain,"[9] and noted its "general implausibility."[10] Moreover, in *Matsushita*, the Court embraced the view that "there is a consensus among commentators that predatory pricing schemes are rarely tried, and even more rarely successful."[11] Other courts have embraced this view,[12] including a later Supreme Court in the *Brooke* decision.[13] The consensus to which the Court referred rested most essentially on empirical studies by John McGee and Roland Koller, published in 1958 and 1969,[14] each of which the Court cited explicitly.[15]

In his 1958 article, McGee analyzed the trial record of the 1911 *Standard Oil*

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the firm's long-term ability to reap the benefits of monopoly power."); *see also* Proposal—Unfair Exclusionary Conduct in Airline Transportation Industry Policy, Trade Reg. Rep. ¶ 50,163 (May 13, 1998) [hereinafter DOT Proposal]; ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 144 (1978) (defining predation as driving rivals from the market or forcing rivals to abandon certain competitive behavior); JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 372 (1988) (defining predation as "inducement of exit"); Luis M.B. Cabral & Michael H. Riordan, *The Learning Curve, Predation, Antitrust, and Economic Welfare*, 45 J. INDUS. ECON. 55, 60 (1997); Garth Saloner, *Predation, Mergers, and Incomplete Information*, 18 RAND J. ECON. 165, 166 & n.5 (1987); *cf.* Janusz A. Ordover & Robert D. Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L.J. 8 (1981) (contestable market approach).

6. *See* A.B.A. SECTION OF ANTITRUST LAW, MONOGRAPH NO. 22, PREDATORY PRICING 24-33 (1996). *See generally* Joseph F. Brodley, *The Economic Goals of Antitrust: Efficiency, Consumer Welfare, and Technological Progress*, 62 N.Y.U. L. REV. 1020, 1044-45 (1987) (anticompetitive effects of exclusionary conduct). Predatory pricing may violate section 2 of the Sherman Act as conduct that monopolizes or attempts to monopolize, *see* 15 U.S.C. § 2 (1994), or may be unlawful price discrimination under the Robinson-Patman Act, 15 U.S.C. § 15(a) (1994).

7. *See* Ordover & Willig, *supra* note 5, at 8, 52.

8. 475 U.S. 574 (1986).

9. *Id.* at 588-89.

10. Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 227 (1993).

11. *Matsushita*, 475 U.S. at 590.

12. *See, e.g.*, Bathke v. Casey's Gen. Stores, Inc., 64 F.3d 340, 343 (8th Cir. 1995) (quoting *Matsushita*, 475 U.S. at 589); Vollrath Co. v. Sammi Corp., 9 F.3d 1455, 1460 (9th Cir. 1993) (quoting *Matsushita*, 475 U.S. at 590-91).

13. *See Brooke*, 509 U.S. at 226 (quoting *Matsushita*, 475 U.S. 590-91).

14. *See* Roland H. Koller II, *The Myth of Predatory Pricing: An Empirical Study*, ANTITRUST L. & ECON. REV., Summer 1971, at 105; John S. McGee, *Predatory Price Cutting: The* Standard Oil *(N.J.) Case*, 1 J.L. & ECON. 137 (1958); *see also* Kenneth G. Elzinga, *Predatory Pricing: The Case of the Gunpowder Trust*, 13 J.L. & ECON. 137 (1958) (similar study).

15. *Matsushita*, 475 U.S. at 589-90.

decision,[16] a case long considered the classic example of predation. The Rockefeller-dominated Standard Oil Company was thought to have cut prices below its cost to drive out its smaller rivals, intending later to raise prices and exploit consumers.[17] McGee found little indication in the trial record that this had occurred.[18] More than that, McGee found that a predatory strategy by a large firm such as Standard Oil against a much smaller rival would have been economically irrational in view of the much larger market share over which the predator must cut the price.[19] Recognizing that the predator cannot sustain such losses indefinitely, the prey will not be induced to leave the market. Nor will lack of funds exclude even the smallest prey, since capital markets will step in to supply funds to an efficient producer. But even if the predator could drive the prey from the market, the predator would gain little because when it later attempted to raise price, either the prey or a subsequent purchaser could reopen the failed plant.[20]

For a long time, McGee's analysis provided the only coherent economic theory of predatory pricing. While some resisted McGee's conclusion that predatory pricing was irrational,[21] no rival theory emerged. However, examples of apparent predation existed. Among the most notable was the use of "fighting ships" to exclude shipping rivals, as exemplified in the famous Mogul Steamship Company case, described by B.S. Yamey[22] and, more recently, by Fiona Scott Morton.[23] To drive out an intruding rival from the China trade, the defendant shipping conference quoted rates, which, according to Lord Esher in the Mogul case, were "so low that if continued . . . they themselves could not carry on the trade."[24] Conference ships were even sent empty to Hankow in order to underbid the upstart shipping line.[25]

Other striking instances of predation include: (1) the use of fighting brands in the match industry in both Canada and the United Kingdom, whereby the monopolist would introduce a special brand, locally marketed, to foil new entry, confining sales of the brand to the entrant's local territory and withdrawing the brand as soon as the entrant left the market or sold out to the monopolist;[26] (2) the use of "punitive base points" in the American cement industry, where the industry punished a "recalcitrant" firm that failed to follow the industry's cartel

16. Standard Oil Co. v. United States, 221 U.S. 1 (1911).

17. *See* McGee, *supra* note 14, at 138.

18. *See id.*

19. *See id.* at 139-41.

20. *See id.* at 140-41.

21. *See* RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 184-86 (1976); James Miller III, *Comments on Baumol and Ordover*, 28 J.L. & ECON. 267 (1985) (predation occurs).

22. *See* B.S. Yamey, *Predatory Price-cutting: Notes and Comments*, 15 J.L. & ECON. 129, 140 (1972).

23. *See* Fiona Scott Morton, *Entry and Predation: British Shipping Cartels 1879-1929*, 6 J. ECON. & MGMT. STRATEGY 679 (1997).

24. Yamey, *supra* note 22, at 140.

25. *See id.*

26. *See id.* at 136-37.

pricing system by making its production center an involuntary base point with a drastically reduced base price, adhered to by other sellers;[27] (3) the establishment of bogus independents, secretly controlled by the American Tobacco Company to sell at low prices in the prey's territory to force rivals to sell out at depressed prices, thereby allowing the American Tobacco Company to maintain its monopoly;[28] (4) sustained below-cost pricing by Southern Bell Telephone in the early 1900s, when entry was threatened by independent telephone companies, and further price reduction when entry occurred, combined with other predatory strategies;[29] (5) below-cost pricing by the Sugar Trust between 1887 and 1914 to drive out recent entrants;[30] (6) locational predation by a leading Canadian supermarket chain that built new stores close to an entrant's plant, with the apparent single purpose of forcing losses on the entrant as well as its own plant, sustaining the reputation effect hypothesis;[31] and (7) an experimental study showing the incentive in markets with incomplete information to engage in predation to deter entry.[32] Finally, a recent re-examination of *Standard Oil*—the very case on which McGee had primarily relied in rejecting the logic of predation—found that Standard Oil had in fact used predatory tactics, although not necessarily predatory pricing, against its rivals, but in a far more subtle way than McGee had imagined.[33]

Nevertheless, the force of these examples was weakened by the lack of supporting economic theory. In addition, Roland Koller's article, *The Myth of*

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27. *Id.* at 137; *see also* FTC v. Cement Inst., 333 U.S. 683 (1948) (holding that Federal Trade Commission was empowered to issue cease and desist order against cement producers who were charged with hindering competition by using a multiple basing point system to control pricing).

28. *See* Malcolm R. Burns, *Predatory Pricing and the Acquisition Cost of Competitors*, 94 J. POL. ECON. 266, 271 & n.11 (1986).

29. *See* David F. Weiman & Richard C. Levin, *Preying for Monopoly? The Case of Southern Bell Telephone Company, 1894-1912*, 102 J. POL. ECON. 103, 105, 113 (1994).

30. *See* DAVID GENÉSOVE & WALLACE P. MULLIN, PREDATION AND ITS RATE OF RETURN: THE SUGAR INDUSTRY, 1887-1914, (National Bureau of Econ. Research Working Paper No. 6032, 1997).

31. *See* Balder Von Hohenbalken & Douglas S. West, *Empirical Tests for Predatory Reputation*, 19 CAN. J. ECON. 160, 170-76 (1986). In reputation effect predation, the predator reduces price in one market to induce the prey or potential entrants to believe the predator will cut price in either the same or another market at a later time. *See infra* text accompanying note 270.

32. *See* Yun Joo Jung et al., *On the Existence of Predatory Pricing: An Experimental Study of Reputation and Entry Deterrence in the Chain-Store Game*, 25 RAND J. ECON. 72 (1994). *See generally* LOUIS PHLIPS, COMPETITION POLICY: A GAME-THEORETIC PERSPECTIVE 206-15 (1995) (reviewing mixed experimental evidence).

33. Standard Oil engaged in predation against its rivals by becoming what Krattenmaker and Salop have colorfully termed "a cartel ringmaster." Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 YALE L.J. 209, 238 (1986). Standard Oil served as the enforcer and beneficiary of a cartel among the railroads upon whose services the oil industry vitally depended. Standard thereby obtained large advantages over its refinery rivals, which paid cartel-enhanced prices, while Standard Oil maintained the cartel by agreeing to the high cartel price—for which it was compensated by rebates. In effect, Standard and the railroads divided the cartel profit—obtained at the expense of Standard's rivals—who frequently sold out to Standard at distressed prices. *See* Elizabeth Granitz & Benjamin Klein, *Monopolization by "Raising Rivals' Costs": The* Standard Oil *Case*, 39 J.L. & ECON. 1 (1996).

Predatory Pricing,[34] which has been relied on by the Supreme Court and leading commentators such as Areeda and Turner and Robert Bork,[35] also seemed to provide convincing countervailing evidence.

However, the mythology claim is overdrawn. Koller found that out of twenty-three cases where he judged the legal record to be sufficiently informative, actual predation was attempted in seven cases (thirty percent) and succeeded in only four (seventeen percent).[36] But, a more recent study by Zerbe and Cooper examining the same cases—beginning in 1940 and updated to 1982—concluded that predatory pricing was present in twenty-seven out of forty litigated cases.[37] Moreover, both studies were likely to have underreported predatory pricing because they limited their investigation to litigated cases with revealing trial records. The studies therefore excluded extrajudicial outcomes: (1) settlements—including consent settlements with the government—which are likely to be a frequent result in strong cases;[38] (2) predatory disciplining where no suit is filed because the prey agrees to comply with the predatory demand; (3) forced buy-outs where the prey may typically release antitrust claims; and (4) cases that were not brought because supporting economic theory was as yet undiscovered or unknown. By contrast, recent case studies that have found striking episodes of conduct clearly consistent with predatory pricing, such as the Burns study of the American Tobacco case,[39] have used powerful econometric techniques not employed in earlier, more impressionistic surveys, or have probed deeply into historical archives, as have Fiona Scott Morton[40] and Genesove and Mullin.[41]

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34. Koller, *supra* note 14, at 106 (drawn from Roland Koller, Predatory Pricing in a Market Economy (1969) (unpublished Ph.D. dissertation, University of Wisconsin) (on file with author)).

35. *See* Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp., 475 U.S. 589, 590 (1986); BORK, *supra* note 5, at 155; 3 PHILIP AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 723 at 223 (rev. ed. 1996); Philip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697, 699 (1975).

36. *See* Koller, *supra* note 14, at 112. The 23 cases were selected out of a total of 95 federal cases in which the defendant was legally adjudged to have engaged in predation. The 95 cases were themselves taken from a total of 123 cases, the author having eliminated without investigation the 28 cases of acquittal. *See id.* at 110.

37. *See* Richard O. Zerbe, Jr. & Donald S. Cooper, *An Empirical and Theoretical Comparison of Alternative Predation Rules*, 61 TEX. L. REV. 655, 699-708 (1982); Richard O. Zerbe, Jr. & Michael T. Mumford, *Does Predatory Pricing Exist? Economic Theory and the Courts After* Brooke Group, 41 ANTITRUST BULL. 949, 958 (1996). The empirical study is described in the earlier 1982 article, but the fact that the data contradict the Koller study was not made explicit until the recent 1996 article, and, probably for that reason, has been neglected in the legal literature. *See also* Edward H. Cooper, *Attempts and Monopolization: A Mildly Expansionary Answer to the Prophylactic Riddle of Section Two*, 72 MICH. L. REV. 375, 436 & n.232 (1974) (citing nine cases as involving clear or "highly probable" below-cost pricing to discipline or eliminate competition).

38. *See infra* notes 92, 124 and accompanying text.

39. *See* Malcolm R. Burns, *New Evidence of Price-cutting*, 10 MANAGERIAL & DECISION ECON. 327 (1989). It should be noted that Koller agrees that the American Tobacco case, analyzed in the Burns study, represents an instance of actual predation. Koller, *supra* note 14, at 115.

40. *See* Morton, *supra* note 23.

41. *See* GENESOVE & MULLIN, *supra* note 30. While the empirical studies we have cited appear to be striking instances of predatory pricing, one cannot entirely rule out an efficiencies justification for these actions, as John Lott has recently argued. *See* JOHN R. LOTT, JR., ARE PREDATORY COMMITMENTS

Finally, even if the Koller study had correctly concluded that predatory pricing was rare in litigated cases, this would scarcely be surprising given the populist legal standard that prevailed in the pre-1969 period he surveyed—following passage of the Robinson-Patman Act in 1936.[42] Strikingly, only six of the twenty-three cases in the Koller sample occurred before 1936, and these include two of the four cases in which Koller identified actual predation.[43] During the era of expansive Robinson-Patman Act enforcement, discriminatory price cutting by a large interstate firm that injured a small local rival, accompanied by evidence of animus or simply sustained price cutting, was virtually per se unlawful.[44] Certainly, this was what lawyers were advising their clients,[45] and it seems more than likely that such an overly inclusive legal rule would have deterred most predatory pricing. That would, of course, provide no indication that predation would be rare under a less inclusive legal rule.[46]

The older economic analysis exemplified by McGee is challenged in an even more fundamental way by developments in economic theory over the last twenty years. Stimulated by the growing number of observed instances of predatory pricing and the emergence of modern game theory, which provided the tools for analyzing complex strategic situations, economists developed new economic theories beginning in the early 1980s.[47] This new body of research challenges the static framework of perfect information on which McGee had relied. The new analysis explains predatory pricing in a dynamic world of imperfect and asymmetric information in which strategic conduct can be profitable.[48] Under this analysis, the predator seeks to influence the expectations of an existing rival, a potential rival, or perhaps most striking of all, the prey's creditors, to convince the rival that continued competition or future entry into the market will be unprofitable. As summarized by Paul Milgrom:

> Thus, for example, a firm in an industry with rapid product change might cut prices sharply in answer to new entry in order to discourage the new entrant from continuing an active product development programme. Whether the entrant attributes its lack of profitability to its high costs, to weak market

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CREDIBLE? 6-7 (1999). However, it seems fair to assume that had any evidence in these careful and often exhaustive studies suggested such a defense, the authors would have reported it. Indeed, Burns followed his empirical study with a review of the trial record in the American Tobacco case, finding supporting evidence for predation. *See* Burns, *supra* note 39.

42. 15 U.S.C.A. § 13(a) et seq.

43. *See* Koller, *supra* note 14, at 114-17.

44. *See* FREDERICK M. ROWE, PRICE DISCRIMINATION UNDER THE ROBINSON-PATMAN ACT 144-49 (1962).

45. *See* ANTITRUST ADVISOR 312-13 (Carla Anderson Hills ed., 1971) (desk book intended for company counsel).

46. The same limitation applies to Lott's study, which is based in part on a data set of reported decisions (including some of those in the Koller study), where in 15 of the 21 cases Lott investigated, the predation began during the pre-1975 populist era. *See* LOTT, *supra* note 41, at 29-30.

47. *See* sources cited *infra* notes 267-68.

48. *See* sources cited *infra* note 266.

> demand, to overcapacity in the industry, or to aggressive behaviour by its competitor, it will properly reduce its estimate of its future profits. If its capital has other good uses, this might lead it to withdraw from the industry. If not, it may nevertheless be dissuaded from making new investments in and developing [n]ew products for the industry. At the same time, other firms may be deterred from entering the industry. If *any* of these things happen, the predator benefits.[49]

As this passage suggests, predatory pricing may pose a special threat in rapidly growing, high-technology industries, which often involve intellectual property and continuing innovation.[50]

In developing a strategic approach to predatory pricing, economists have formulated several coherent theories. In these theories, which include financial market predation and various signaling strategies, predatory pricing is a rational, profit-maximizing strategy.[51] While the formal economic proof of the theories is complex, their intuitions can be simply described. The theory of financial market predation challenges McGee's assumption that the prey can readily obtain capital under predatory conditions. Predatory risk arises because providers of capital use the threat of termination when profits are low as an incentive scheme to induce the firm to repay its debts. If predation causes the prey's profits to fall, the banks observe the decline, but cannot tell whether it is caused by predation or inefficient performance; moreover, even if a bank could identify predation, it would be unable to write an enforceable lending contract contingent on its occurrence. Under these circumstances, lending to the prey becomes more risky, and banks or other investors reduce or withdraw their financial support.[52]

Similarly, signaling theories challenge McGee's assumption that a predatory strategy by a large firm is economically irrational because it must sustain larger losses than its smaller prey. In markets where information is imperfect, signaling strategies may enable a predator to mislead its rival into believing that market conditions are unfavorable, even when they are not. Signaling theories include reputation effect, test market predation, and cost signaling.[53] In reputation effect predation, the most important of the signaling strategies, a predator reduces price in one market to induce the prey to believe that the predator will cut price in its other markets or in the predatory market itself at a later time, thereby enabling multimarket recoupment of predatory losses.[54] In test market

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49. Paul Milgrom, *Predatory Pricing*, *in* THE NEW PALGRAVE DICTIONARY OF ECONOMICS 937, 938 (John Eatwell et al. eds., 1987).

50. *See* Paul Milgrom & John Roberts, *New Theories of Predatory Pricing*, *in* INDUSTRIAL STRUCTURE IN THE NEW INDUSTRIAL ECONOMICS 112, 116-18 (Giacomo Bonanno & Dario Brandolini eds., 1990).

51. *See generally* Ordover & Saloner, *supra* note 4.

52. *See infra* Part IV.

53. *See infra* Parts V-VI.

54. *See infra* text accompanying notes 269-70.

predation, the prey is attempting to ascertain consumer response to a new product or to its entry into a new geographic market. The predator frustrates the prey's market probe by openly cutting price in the test market to keep the prey ignorant about normal market conditions.[55] Finally, in cost signaling, a predator drastically reduces price to induce the prey to believe that the predator has lower costs, when in fact the predator has no cost advantage.

To summarize, present judicial skepticism about predatory pricing assumes that predation is extremely rare, but sound empirical and experimental studies, as well as modern economic theory, do not justify this assumption. This judicial skepticism, influenced by economic assumptions based on a world of perfect information, has failed to make use of sophisticated modern theories founded on more realistic assumptions of imperfect and asymmetric information, where much is unknown and where one party may have more knowledge than the other. In addition, because the present legal rule does not contain a fully specified efficiencies defense that reaches dynamically efficient pricing strategies, predatory pricing enforcement may also risk overdeterrence.

While critics of strategic analysis have suggested a variety of counterstrategies that might foil predation,[56] the counterstrategies are not considered in an exhaustive—or equilibrium—analysis that works out all possible moves and countermoves of the parties. Moreover, the counterstrategies implicitly assume that market participants have full or symmetric information. As will be developed below, the counterstrategies are not convincingly sustainable in a world of imperfect information, and also face several other serious impediments.[57]

This Article proposes to remedy these deficiencies by taking an approach explicitly based on modern strategic theory. Modern theory is critically needed because proof of predatory pricing under recent Supreme Court decisions requires a showing that the alleged predation is economically rational, which is precisely what the newer theory demonstrates. The approach proposed here is not intended to burden plaintiffs with new requirements of proof, but rather to augment and increase enforcement options to reflect modern economic theory. Plaintiffs would remain free to maintain a predatory pricing case without reliance on modern theory. Consistent with existing law, the rule proposed by this Article would require that price be below some measure of cost, which the authors believe is best viewed in terms of incremental cost.

Finally, and of critical importance, this proposal would allow for a comprehensive efficiencies defense.[58] The proposal would expand the defense to include dynamic and welfare-enhancing gains that outweigh anticompetitive losses. Therefore, the defense would include learning-by-doing, network economies,

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55. *See infra* text accompanying notes 321-21
56. *See infra* Part VII.A.
57. *See infra* Part VII.
58. *See infra* Part III.B.

and even promotional economies in narrowly specified cases. This proposed approach is basically consistent with the legal doctrine of *Brooke*, and would enrich and inform its application through a better understanding of both predatory strategies and efficiencies justifications. In briefest compass, one might describe this approach as a structured rule of reason informed by modern economic theory. Before presenting the proposal in more detail, we first describe current legal policy, its evolution, and the present diminished level of enforcement.

II. CURRENT LEGAL POLICY

American antitrust law entered a new era in 1993 when the Supreme Court decided the *Brooke* case. In the lower courts, the decision had an effect on enforcement comparable only to the impact of the Areeda-Turner article in 1975, which launched the cost-based approach to predatory pricing.[59] Indeed, in the six years following *Brooke*, plaintiffs have not prevailed to final judgment in a single reported case. The significance of *Brooke* can be fully appreciated only through an examination of its historical background, its proper interpretation, and subsequent lower court applications.

A. BEFORE *BROOKE*: THE AREEDA-TURNER RULE

Predatory pricing enforcement extends over almost the entire history of the Sherman Act.[60] Cases were infrequent until after passage of the Robinson-Patman Act in 1936[61] and the inauguration of a strong enforcement effort by the Federal Trade Commission (FTC) in the 1940s.[62] In the early years of the Robinson-Patman Act, enforcement protected small local firms from price cutting by large sellers. Discriminatory price cutting by a large interstate seller that injured a local rival, accompanied by predatory intent, was virtually per se unlawful.[63] Largely missing was any consideration of the consumer interest in lower prices and vigorous competition.[64] Plaintiffs won most litigated cases, including those they probably should have lost.[65] It seems no exaggeration to call this the "populist era of predatory pricing enforcement."

The enforcement climate changed radically in 1975 upon the publication of the Areeda-Turner article.[66] The article proposed a single per se standard based

59. *See* Areeda & Turner, *supra* note 35, at 697.

60. *See* PREDATORY PRICING, *supra* note 6, at 4-6. *See generally* CORWIN D. EDWARDS, THE PRICE DISCRIMINATION LAW 5-7 (1959).

61. 15 U.S.C.A. § 13(a) et seq.

62. *See generally* Koller, *supra* note 14.

63. *See, e.g.*, ANTITRUST ADVISOR, *supra* note 45, at 312-13; CYRUS AUSTIN, PRICE DISCRIMINATION AND RELATED PROBLEMS UNDER THE ROBINSON-PATMAN ACT 46-47 (1959). Predatory intent was easily established. *See* Utah Pie Co. v. Continental Baking Co., 386 U.S. 685, 697-98 (1967).

64. *See Utah Pie Co.*, 386 U.S. at 706 (Stewart, J., dissenting).

65. Out of a total of 123 federal cases from 1890 to 1971, the prey was legally adjudged to have suffered predatory injury in 95 cases, or 77% of the cases brought. *See* Koller, *supra* note 14, at 110.

66. *See, e.g.*, Joseph F. Brodley & George A. Hay, *Predatory Pricing: Competing Economic*

on sales below average variable cost (AVC)—the average unit costs of producing the product excluding fixed costs—which replaced the vague conjunction of factors previously used to detect predatory pricing behavior. The Areeda-Turner rule had an immediate impact on the courts; indeed, so much so that the success rate of plaintiffs fell drastically in the years immediately following publication of the article.[67] However, over succeeding years the rule evoked a more nuanced response as economists proposed alternative rules, lower courts relaxed per se elements, and the litigation prospects of plaintiffs improved modestly.

1. Economic Critique

A sharp economic critique quickly challenged the Areeda-Turner rule.[68] Although economists had asserted in general terms the need for a strategic approach, they had not yet proved that predatory pricing could be profitable. Critics charged that the short-run AVC rule missed the essential nature of predation—strategic behavior over time. Price cuts by dominant firms, they argued, must be viewed as strategic communication involving threats and sanctions. Effective policy therefore required a predatory pricing rule that considered strategic factors and long-run welfare effects.[69] Moreover, the critics did not simply fault the Areeda-Turner rule. Instead, they offered a series of alternative rules, which sought to capture the strategic and intertemporal essence of predatory pricing. The proposals were of two types. The first sought to mirror the seeming simplicity of the Areeda-Turner rule by focusing on a single non-cost parameter that would identify predation. The second attempted to assess strategic conduct directly, relying on multiple criteria, including but not limited to cost.[70]

In the first category are the Williamson output increase rule[71] and the Baumol price reversal rule.[72] Williamson found pricing conduct by a dominant firm

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Theories and the Evolution of Legal Standards, 66 CORNELL L. REV. 738, 751-57 (1981) (describing and evaluating Areeda-Turner and alternative rules).

67. *See, e.g.*, James D. Hurwitz & William E. Kovacic, *Judicial Analysis of Predation: The Emerging Trends*, 35 VAND. L. REV. 63, 140-45 & n.295 (1982) (success rate fell to eight percent).

68. *See* Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 942 (1979).

69. Actually, Areeda and Turner did not disagree in principle, but emphasized that their rule was pragmatic, and that they had simply chosen the best rule given the constraints of the legal process and the "extremely rare" occurrence of predatory pricing. *See* Areeda & Turner, *supra* note 35, at 699, 718 & n.7 (citing Koller, *supra* note 14 (case study of predatory pricing during the populist era)). Later editions of the treatise have refined the original Areeda-Turner rule in various ways. *See* AREEDA & HOVENKAMP, *supra* note 35, ¶ 720 et seq.

70. *See* Brodley & Hay, *supra* note 66, at 754-65 (reviewing rules). *See generally* AREEDA & HOVENKAMP, *supra* note 35, ¶ 736a.

71. *See* Oliver E. Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 384 (1977).

72. *See* William J. Baumol, *Quasi-Permanence of Price Reductions: A Policy for Prevention of Predatory Pricing*, 89 YALE L.J. 1 (1979) [hereinafter Baumol, *Policy for Prevention*]. Baumol has recently written a second article on predatory pricing, which is essentially an update of the Areeda-Turner rule, but which replaces the AVC standard with average avoidable cost. *See* William J. Baumol,

predatory when the predator significantly increases output within twelve to eighteen months following entry into the market of a competing firm. The Baumol price reversal rule would deem a price predatory if it forced a rival to leave the market and the predator then reversed the price cut within the next several years.[73] Neither of these rules attempted to identify the firm's predatory strategy, but relied on the designated objective indicator. While the two tests can be helpful in identifying predation,[74] neither is independently sufficient. Predation is too multifaceted a phenomenon to be identified by any single factor, and the attempt to do so may lead to errors both of overinclusion and underinclusion.[75]

The second category of post-Areeda-Turner proposals attempted to assess strategic conduct directly by combining one or more economic indicators—usually including cost and market structure—with an appraisal of corporate purpose or intent. For example, in the most comprehensive of the proposals, Joskow and Klevorick identify suspect pricing using evidence of monopolistic market structure, below-cost pricing, reversal of a price cut, and documented corporate purpose to increase prices after competition is eliminated.[76] Other leading proposals have been offered by Posner, Scherer, Baumol, and Ordover and Willig.[77] These rules are closer in spirit to the approach advocated by this article, but none of them adequately confronts the fact that predation is not a unitary phenomenon. Rather, predation involves a variety of predatory strategies that require distinct legal approaches. Therefore, the critics did not attempt to describe and classify the various predatory strategies or to craft an approach keyed to an identified predatory strategy, as is proposed in this Article.[78]

Predation and the Logic of the Average Variable Cost Test, 39 J. L. & ECON. 49, 58 (1996) [hereinafter Baumol, *Predation*].

73. *See* Baumol, *Policy for Prevention*, *supra* note 72, at 4-6.

74. Thus, some judges gave evidentiary weight to the reversal of a price cut after the prey left the market, as suggested by Baumol and Joskow and Klevorick. Recently the Department of Transportation issued proposed guidelines that used an output-based rule to identify airline predation, as suggested by Williamson.

75. If price below AVC were identified as the single factor, then the rule would be overinclusive when pricing below AVC is economically efficient, *see infra* Part III.B, and the rule would be under-inclusive when pricing above AVC is predatory, as may arise in intellectual property where price is almost always above AVC. *See infra* text accompanying notes 184-82; *see, e.g.*, Paul L. Joskow & Alvin K. Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L.J. 213 (1979).

76. *See* Joskow & Klevorick, *supra* note 75, at 242-70.

77. Posner would combine an average total cost test and a high market concentration requirement with proof of intent to exclude rivals. *See* POSNER, *supra* note 21, at 188-91. Scherer would require a full rule-of-reason inquiry into all relevant economic factors, with particular focus on intent and market structure. *See* F.M. Scherer, *Predatory Pricing and the Sherman Act: A Comment*, 89 HARV. L. REV. 868, 873-75 (1976). In an update of the Areeda-Turner rule, Baumol essentially embraces the rule as a per se test, although he introduces refinements. *See* Baumol, *Predation*, *supra* note 72. Finally, Ordover and Willig, reaching for a unifying principle, would define a price reduction as predatory if the gain to the predator depends on the added market power the predator receives from the prey's forced exit. *See* Ordover & Willig, *supra* note 5.

78. Foreshadowing our approach, Richard Schmalensee suggested that a strategic approach to

2. Augmented Areeda-Turner Rule

After the 1975 Areeda-Turner article, the lower courts quickly embraced the average variable cost pricing rule in its per se form, but soon retreated after confronting criticism and litigation problems.[79] To begin with, the AVC rule proved difficult to litigate. Cost determination—however cost may be defined—is inevitably complex and poorly suited for jury determination. In addition, most of the economic critics rejected a per se short-term-cost test.[80] Finally, post-1975 judicial decisions clearly demonstrated that a per se rule based on average variable cost strongly favored defendants.[81] Indeed, in the five years immediately following the Areeda-Turner article, no predatory pricing plaintiff prevailed, and the rule was aptly called "a defendant's paradise."[82]

In light of these difficulties, most courts declined to adopt a per se rule, and instead augmented the Areeda-Turner formulation with other factors, which included cost-based presumptions, intent, and market structure.[83] While the approaches taken by the circuits varied, courts most often held that a price below average variable cost was presumptively unlawful, while a price above average total cost was conclusively lawful. A price falling between these two cost benchmarks was presumptively lawful, but the presumption could be rebutted by evidence of intent and market structure.[84] In the absence of controlling Supreme Court precedent, lower courts weighed non-cost factors differently, but courts in most circuits relied on evidence of intent and, increasingly, market structure.[85] Some courts followed a sliding scale approach, requiring more or less proof of predatory intent (and other nonprice factors) depending on how far price fell below average total cost.[86] In examining intent, courts began to distinguish between a mere intent to defeat a rival in competition—however

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predatory pricing required that the analysis be focused on the particular model that fits the factual circumstances of the case. *See* Craswell & Fratrik, *supra* note 4, (approach should be sensitive to industry under examination, which was, in this case, grocery industry); Richard Schmalensee, *On the Use of Economic Models in Antitrust Cases: The* Realemon *Case*, 127 U. PA. L. REV. 994 (1979).

79. *See, e.g.*, William Inglis & Sons Baking Co. v. ITT Continental Baking Co., 668 F.2d 1014, 1032 (9th Cir. 1981) (declining to adopt the Areeda-Turner test without qualifications); International Air Ind. v. American Excelsior Co., 517 F.2d 714, 723 (5th Cir. 1975) (adopting the Areeda-Turner pricing rule). *See generally* Brodley & Hay, *supra* note 66; Hurwitz & Kovacic, *supra* note 67 (listing cases).

80. *See* Brodley & Hay, *supra* note 66, at 754-65.

81. *See id.* at 768.

82. Williamson, *supra* note 71, at 305.

83. *See* Brodley & Hay, *supra* note 66 at 769.

84. *See* A.B.A. SECTION OF ANTITRUST LAW, PREDATORY PRICING LAW: A CIRCUIT-BY-CIRCUIT SURVEY (Barbara O. Bruckman ed., 1995) [hereinafter CIRCUIT-BY-CIRCUIT].

85. Following the Supreme Court dictum in *Cargill, Inc. v. Monfort of Colorado, Inc.*, 479 U.S. 104, 119 & n.15 (1986), the lower courts more frequently recognized high concentration and entry barriers as necessary conditions for predation because otherwise the predator would be unable to recoup its predatory investment. *See, e.g.*, A.A. Poultry Farms, Inc. v. Rose Acre Farms, Inc., 881 F.2d 1396, 1401 (7th Cir. 1989) (citing Joskow and Klevorick, *supra* note 75). Finally, some courts gave particular weight to evidence that the price cut had been reversed following exit of the prey. *See, e.g.*, U.S. Philips Corp. v. Windmere Corp., 861 F.2d 695, 703 (Fed. Cir. 1988).

86. *See* CIRCUIT-BY-CIRCUIT, *supra* note 84, at 66-67.

vividly expressed—and a plan to eliminate rivals and then raise prices.[87] On the other hand, a few courts found an intent inquiry unhelpful and simply inferred the statutorily required intent from the relation of price to cost.[88] In all circuits, however, cost determination remained a source of continuing difficulty.[89]

3. Litigation Outcomes

The decisive impact of the Areeda-Turner rule was reflected in litigation outcomes. In the seven years immediately following the article's publication, plaintiffs' success rate measured by favorable judgments fell to only eight percent of cases reported (as compared with seventy-seven percent in the populist era).[90] However, in the ten years between Areeda-Turner and the *Brooke* decision, which roughly coincided with the augmented AVC rule, plaintiffs' success rate rose to seventeen percent.[91] Moreover, if settlements are taken into account, the success rate of plaintiffs may have been considerably higher.[92] Interestingly, the number of reported cases declined in the latter period, perhaps indicating greater selectivity by counsel in cases tried.[93]

Indeed, it is possible that predatory pricing enforcement achieved a more or less satisfactory equilibrium in the years immediately preceding *Brooke*. While a predatory pricing case remained difficult for a plaintiff to win, flagrant predation based on prices below either average variable or average total cost remained actionable in most jurisdictions. Juries presented something of a wild card, occasionally handing down enormous—and perhaps excessive—ver-

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87. *See, e.g.*, William Inglis & Sons Baking Co. v. ITT Continental Baking Co., 942 F.2d 1332, 1337 (rejecting offered evidence of intent as more consistent with competition than predation).

88. *See, e.g.*, Barry Wright Corp. v. ITT Grinnell Corp., 724 F.2d 227, 231-32 (1st Cir. 1983).

89. The cost issue was expensive to litigate, and was subject to unavoidable dispute in resolving whether costs were fixed or variable, and in allocating joint and common costs. Compounding the problem was the fact that cost determination was usually a jury question. *See* CIRCUIT-BY-CIRCUIT, *supra* note 84, at 29. By 1995, Professor Areeda, having minimized the cost determination 20 years earlier, conceded that "the difficulties of measuring cost are notorious." PHILIP AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 508 (Supp. 1995).

90. A study of reported predatory pricing decisions from 1975—the year of the Areeda-Turner article—until 1982 found that out of 48 decided cases, the plaintiffs prevailed in only four cases, or 8% of the total. *See* Hurwitz & Kovacic, *supra* note 67, at 140, 145; *see also* Stephen C. Salop & Lawrence J. White, *Private Antitrust Litigation: An Introduction and Framework* in PRIVATE ANTITRUST LITIGATION: NEW EVIDENCE, NEW LEARNING 3, 42 (Lawrence J. White ed., 1988) (over roughly comparable period plaintiffs obtained favorable judgments in 7% of cases filed with predatory pricing claim, as compared with success rate of 11% for all antitrust claims).

91. Search of Westlaw, ALLFEDS database (July, 1996) (figures represent authors' own calculations).

92. From 1983 to 1993, plaintiffs won only four cases. But, in nine additional cases, the court denied the defendant's motion for summary judgment. None of these cases was subsequently reported, and one may surmise that favorable settlements may have been obtained in some. Defendants would have good reason to settle strong cases, given the expense of trial and the propensity of juries to give large awards. Assuming that half of the cases led to favorable results for plaintiff, the plaintiff's success rate would rise to 37%.

93. Thus, the number of decided cases fell from 48 cases in the earlier period from 1945 to 1952 to 23 cases in the later period under the augmented AVC rule.

dicts,[94] but courts moderated these verdicts by granting summary judgment or judgment notwithstanding the verdict following such awards.[95] Nevertheless, the continued filing of predatory pricing cases, accompanied by large jury awards when plaintiffs were successful, may have served to deter actual predation.[96] This equilibrium, which evolved gradually, is now threatened—not by the *Brooke* decision itself—but by its application in the lower courts.

B. THE *BROOKE* DECISION

The *Brooke* decision established a new framework for predatory pricing analysis. While elements of the new analysis were foreshadowed in two earlier Supreme Court decisions,[97] *Brooke* melded them into a more fully articulated judicial policy. First, predatory pricing requires proof of below-cost pricing, but the Court did not embrace a particular cost test such as the Areeda-Turner AVC rule. However, a price cannot be predatory unless it is below some measure of cost or even "some measure of incremental cost."[98] Second, and more strikingly, the Court held that predatory pricing requires proof of recoupment. This is defined as a "dangerous probability" (under the Sherman Act) or a "reasonable prospect" (under the Robinson-Patman Act) that the predator can later raise prices sufficient to recoup its investment in below-cost pricing.[99]

The recoupment standard introduced by *Brooke* requires an added element of proof. Proof of recoupment requires not only that the below-cost price exclude or discipline the predatory victim, which was required under previous law, but also proof that the predator will be able to raise price above the competitive

94. *See* Hurwitz & Kovacik, *supra* note 67, at 114.

95. *See id.*; *see, e.g.*, *Brooke*, 509 U.S. 209 (1993) (sustaining district court reversal of $148.8 million jury verdict).

96. It is of course possible that the deterrent effect was excessive, inhibiting competitive pricing. But, the authors know of no evidence supporting such a conclusion, and it appears unlikely in view of the odds favoring defendants in litigated cases, the absence of government enforcement, and the small number of reported predatory pricing cases.

97. *See* Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 592 n.16 (1986) (recoupment concept); Cargill, Inc. v. Monfort of Colo., Inc., 479 U.S. 104, 119 n.15 (1986) (market structure condition); *see also* A.A. Poultry Farms, Inc. v. Rose Acre Farms, Inc., 881 F.2d 1396, 1401 (7th Cir. 1989) (discussing these concepts).

98. *Brooke*, 509 U.S. at 223 (quoting *Cargill*, 479 U.S. at 118).

99. A predatory pricing case may be brought under section 2 of the Sherman Act, 15 U.S.C.A. § 2, or under the Robinson-Patman Act, 15 U.S.C.A. §13. While the essence of the predatory pricing claim is the same under both statutes, the standard of proof differs. *Brooke* was brought under the more expansive Robinson-Patman Act, which requires only a "reasonable possibility" of substantial injury to competition, *see* Lake Communications, Inc. v. ICC Corp., 738 F.2d 1473, 1480 (9th Cir. 1984), while the Sherman Act requires proof of a "dangerous probability" of monopolization, *see* Advanced Health-Care Serv., Inc. v. Radford Community Hosp., 910 F.2d 139, 147 (4th Cir. 1990). The Robinson-Patman Act reaches predation that creates or maintains oligopoly conditions enabling tacit collusion without explicit agreement. *See Brooke*, 509 U.S. at 222. The jurisdictional requirements of the Robinson-Patman Act are somewhat more limiting than the Sherman Act because the predatory sales must involve price discrimination between different buyers or between buyers in different geographical regions, and must be in interstate commerce, as distinct from merely affecting such commerce. *See* 15 U.S.C. § 13(a).

level (recoupment capability) sufficient to compensate the predator for its predatory investment (recoupment sufficiency). The recoupment requirement sharply differentiates predatory pricing from other predatory or exclusionary conduct, where the inference of injury to competition is drawn from the exclusionary conduct and market structure.[100] Put simply, recoupment requires a showing that the predatory conduct will be profitable.[101] More specifically, the plaintiff must demonstrate either: (1) actual recoupment of its predatory investment through supracompetitive pricing, or (2) that increased pricing power or other economic conditions make recoupment likely.[102] As a necessary precondition, the Court emphasized that the recoupment requirement could be satisfied only if the market structure facilitated predation, which would require proof of market concentration, entry barriers, and capacity to absorb the prey's market share.[103] When these threshold conditions are lacking, summary disposition is appropriate.[104]

In *Brooke*, the Supreme Court upheld lower court dismissal because plaintiff had failed to show that price could be raised above the competitive level. Thus, the Court never reached the issue of recoupment sufficiency.[105] Nevertheless, the language of *Brooke* directs a plaintiff to demonstrate that the likely predatory price increase would be "sufficient to compensate for the amounts expended on the predation, including the time value of the money invested in it."[106] While an overly literal interpretation of this language could severely complicate predatory pricing cases,[107] the Court makes clear that the recoupment element can be satisfied by showing either that the predatory scheme in fact produced sustained supracompetitive prices, or that it was likely to have caused that result, even if it did not actually do so. Thus, evidence of increased prices likely to persist (partial recoupment), an intensified anticompetitive market structure, or other market conditions (recoupment capability) would suffice.[108] Subsequent lower court decisions to date appear consistent with this interpretation.[109]

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100. *See, e.g.*, Eastman Kodak Co. v. Image Technical Services, Inc., 504 U.S. 451, 480-81 (1992); Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 596 (1985).

101. *See* AREEDA & HOVENKAMP, *supra* note 35, ¶ 726a.

102. *See Brooke*, 509 U.S. at 225-26.

103. *See id.* at 226.

104. *See id.*

105. *See Brooke*, 509 U.S. at 243.

106. *Id.* at 226; *see, e.g.*, Kenneth G. Elzinga & David Mills, *Testing for Predation: Is Recoupment Feasible?*, 34 ANTITRUST BULL. 869 (1989) (suggested by Court as "one possible model" for evaluating recoupment).

107. *See* AREEDA & HOVENKAMP, *supra* note 35, ¶ 726d.4.

108. *See generally id.* (similar reading).

109. *See, e.g.*, Multistate Legal Studies, Inc. v. Harcourt Brace Jovanovich Legal & Prof'l Publ'g, 63 F.3d 1540 (10th Cir. 1995) (likely recoupment can be shown by increased market power); Advo, Inc. v. Philadelphia Newspapers, Inc., 51 F.3d 1191 (3d Cir. 1995) (reasonable prospect of recouping judged in terms of market structure, especially entry barriers); Traffic Scan Network, Inc. v. Winston, 1995 Trade Cas. (CCH) ¶ 71,044 (E.D. La. 1995) (same).

The *Brooke* Court applied an exacting standard of proof to the specific evidence offered in the case. The facts in *Brooke* were unusual because the alleged predator was not a single dominant firm, but a relatively small cigarette manufacturer holding only twelve percent of the total market—albeit in a highly concentrated market. Predation could occur only if the leading firms engaged in the joint action of oligopolistic price coordination. As no explicit agreement was alleged, the joint action necessarily rested on tacit coordination—a predatory theory the Court thought highly problematic, especially in the factual context of the case.[110]

The alleged predation occurred in response to the plaintiff's introduction of nonbranded, low-cost cigarettes, known as "black and whites" to reflect their stark packaging, which consisted of simple black letters on a white background. In response to this bold initiative, which proved popular with consumers, defendant Brown and Williamson put out its own similar nonbranded black and white cigarette. In a series of continually steepening price cuts, the defendant undersold its rival, reducing its price below average variable cost. Brown and Williamson held prices below AVC for eighteen months, sustaining losses of millions of dollars. At the end of the eighteen-month period, the plaintiff, a small cigarette manufacturer, reversed its competitive stance and raised its prices. The defendant and the other cigarette companies followed suit.[111] The list price of nonbranded black and whites rose by seventy-one percent, while the list price of branded cigarettes increased by thirty-nine percent.[112]

On these facts, the Supreme Court held that no reasonable jury could find that oligopolistic price coordination had produced supracompetitive pricing or that there was even a likelihood this would occur. The Court noted that supracompetitive pricing through tacit coordination is both improbable in general and particularly unlikely under the facts of this case. The Court's view was influenced by a variety of factors: pricing uncertainty caused by multiple product varieties and the practice of giving rebates on list prices; demand uncertainty created by the introduction of nonbranded cigarettes; divergent incentives among competing manufacturers; the absence of evidence showing that pricing signals between manufacturers were understood; and the unsurprising denial by the plaintiff's officers that they had tacitly colluded with their competitors, either voluntarily or by compulsion.[113]

The Court's exacting requirements of proof appear to be driven partly by the assumption that predatory pricing rarely occurs and partly by its skepticism toward predation by tacit coordination among rival firms. As discussed earlier, the view that predation is rare and implausible conduct is based on outdated economic theory; in fairness, however, the old theory was the only economic view presented to the Court. Beyond that, and more central to the outcome in

110. *See Brooke*, 509 U.S. at 228-29.
111. *See id.* at 231 (jury finding sustained by Supreme Court).
112. *See id.* at 249-50 (Stevens, J., dissenting).
113. *See id.* at 237.

Brooke, the Court's view of the predatory pricing claim was colored by its doubts that predation by tacit coordination could realistically occur. Indeed, the Fourth Circuit found that the plaintiff's predatory theory was so weak that it merited dismissal of the case.[114] While unwilling to go as far as the Court of Appeals, the Supreme Court nonetheless expressed grave misgivings, emphasizing the difficult coordination problem of maintaining predation by tacit understanding without explicit communication, particularly in view of the defendant's small market share.[115]

In cases resting on other, more generally accepted predatory theories, such as the single-firm strategic theories relied on in this article, both the Supreme Court and the lower courts are free to take a less skeptical view of predatory strategies. Indeed, if economists develop a persuasive and fully articulated analysis of oligopoly predation, the courts may then be justified in finding predation by oligopoly to be a more plausible predatory strategy.[116] Thus, *Brooke* does not foreclose a stronger reliance on the soundly based predatory theories discussed in this article or others that may be accepted in the future.

A strategic view of recoupment would close the gap in predatory pricing enforcement caused by the neglect of modern analysis. In *Brooke*, the Court omitted from its analysis any consideration of strategic factors such as possible gains from deterring aggressive pricing in future time periods or in other cigarette markets, as in, for example, that of branded cigarettes. Nor did the Court consider what might have happened in the absence of the price war—such as the diminished profits the predator would have earned had it not forced the prey to stop cutting prices. By contrast, under a strategic approach, counsel could have demonstrated that a reputation effect or other predatory theory, such as financial market predation, enabled probable recoupment. Whatever the ultimate resolution of the case, this is the issue that should have been submitted to the courts.[117]

C. POST-*BROOKE* DEVELOPMENTS

1. Legal Decisions

The *Brooke* decision had a powerful effect on cases in the lower courts. In the six years following *Brooke*, plaintiffs have not prevailed in a single case in the

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114. *See* Liggett Group, Inc. v. Brown & Williamson Tobacco Corp., 964 F.2d 335, 342 (4th Cir. 1992).

115. *See Brooke*, 509 U.S. at 228 (finding that coordinated action through conscious parallelism "incalculably more difficult" as it must rely on uncertain and ambiguous signals, subject to misinterpretation and cheating); *see also* Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 590 (1986) (same).

116. The judicial skepticism toward oligopoly predation challenges economists to come up with a sensible theory. Indeed, building on the oligopoly entry deterrence literature, it might be possible to develop such a model. Were such a model to be developed and generally accepted, it would provide an additional, quite plausible theory of predation subject to empirical validation in application to the facts of the particular case. We are indebted to Kyle Bagwell for this suggestion.

117. *See* AREEDA & HOVENKAMP, *supra* note 35, ¶ 727g (reputation effect); *cf.* Jonathan Baker, *Predatory Pricing After* Brooke Group*: An Economic Perspective*, 62 ANTITRUST L.J. 585, 597 (1994) (financial market predation).

federal courts. Of thirty-nine reported decisions, defendants have won thirty-six cases, and of the remaining three cases in which plaintiffs survived motions for summary judgment or dismissal, two were settled while the disposition of the third could not be resolved.[118] Strikingly, of the thirty-six cases won by defendants, all but one were decided on summary judgment, judgment notwithstanding the verdict, or were dismissed on the pleadings.[119]

Plaintiffs' dismal success rate since *Brooke*—after eliminating clearly misconceived cases—appears to be caused at least in part by (1) exacting proof and pleading requirements, spurred by the Supreme Court's open invitation to dismiss predatory pricing cases by summary means; (2) skepticism that predation can ever be a plausible business strategy, also influenced by the Supreme Court's opinion; and, perhaps not unrelated, (3) judicial neglect of modern strategic theories of predatory pricing.

Review of the post-*Brooke* decisions shows that the lower courts took full advantage of the Supreme Court's invitation to dispose of nonmeritorious cases by summary means. Indeed, there have been only four reported trials since *Brooke* and, in the two cases where plaintiffs initially prevailed, the district courts reversed the jury verdicts by judgment notwithstanding the verdict.[120] Many of these cases appear to have been appropriate for summary disposition; for example, in thirteen cases, either the defendant's market share was below forty percent or other structural factors showed that post-predation market power was lacking.[121] But it is also true that the courts dismissed seven cases on

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118. *See* Email Letters from Hardin Holmes and Tucker K. Trautman to authors on June 22, 2000, attorneys representing plaintiff in *Multistate Legal Studies, Inc. v. Harcourt Brace Jovanovich Legal and Professional Publishing*, 63 F.3d 1540 (10th Cir. 1995), *cert. denied*, 116 S. Ct. 702 (1996) (on file with authors); Email Letter from Secretary to John Kirk Train on June 22, 2000, attorney representing plaintiff in *Servicetrends, Inc. v. Siemens Medical Systems, Inc.*, 870 F. Supp. 1042 (N.D. Ga. 1994) (on file with authors).

119. Search of Westlaw, ALLFEDS database (March, 2000) (figures represent authors' own calculations); Email Letter from Holmes and Trautman, *supra* note 118 (verifying settlement); Email Letter from Secretary, *supra* note 118 (verifying settlement). While it is difficult to judge the merits of the universe of legal claims based on success rates at trial, a sharp *change* in trial outcomes may be more informative, following a Supreme Court decision and absence of apparent change in other factors affecting litigation outcomes. *See* George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1 (1984); Donald Wittman, *Is the Selection of Cases for Trial Biased?*, 14 J. LEGAL STUD. 185 (1985).

120. *See* Liggett Group, Inc. v. Brown & Williamson Tobacco Corp., 748 F. Supp. 344 (M.D.N.C. 1990) (granting judgment notwithstanding the verdict primarily because plaintiff-manufacturer failed to prove competitive injury or causation under the Robinson-Patman Act), *aff'd*, 964 F.2d 335 (4th Cir. 1992), *aff'd*, 509 U.S. 209 (1993); Vollrath Co. v. Sammi Corp., 9 F.3d 1455 (9th Cir. 1993) (affirming judgment notwithstanding the verdict due to insufficient evidence of predatory pricing and inability of companies under common ownership to be held liable for antitrust conspiracy).

121. *Brooke* held that summary disposition is appropriate where the market structure is unconcentrated, entry barriers are low, or the defendant lacks excess capacity. *See Brooke*, 509 U.S. at 209. To this list some lower courts have added a requirement that rivals should not be able to expand output. *See, e.g.*, Rebel Oil Co. v. Atlantic Richfield Co., 51 F.3d 1421, 1434 (9th Cir.) (existing rivals lack capacity to increase output in short-run), *cert. denied*, 516 U.S. 987 (1995); J & S Oil, Inc. v. Irving Oil Corp., 63 F. Supp. 62, 67 (D. Me. 1999). But, as we shall see, strategic factors may prevent smaller rivals from increasing output even when they have excess capacity. *See infra* Parts V-VI.

the pleadings, sometimes neglecting the need in antitrust cases to conduct discovery to develop necessary evidence,[122] and in other cases, imposed severe requirements of proof at the summary judgment level.[123] Although plaintiffs defeated motions for summary disposition in three cases,[124] the prospects for a predatory pricing claim in the lower courts are far from encouraging.[125]

However, there appears to be a brightening possibility that the courts will begin to analyze predatory pricing in the light of modern economics. In *Advo, Inc. v. Philadelphia Newspapers, Inc.*,[126] the Third Circuit accepted reputation effect as a possible theory of predatory pricing. The court indicated that price cutting by a chain store in selected local markets could be predatory where the price cutter's demonstrated predatory conduct inhibits competition in other markets as well as the predatory market, causing prices to rise.[127] Finding that a reputation effect theory "makes economic sense," the court nonetheless rejected its specific application in the case as factually unsupported.[128] Similarly, in *Traffic Scan Network, Inc. v. Winston*,[129] the district court rejected a reputation effect argument not because it was implausible, but because market conditions would have prevented such an effect.[130] In addition, the Department of Justice last year filed a civil complaint against American Airlines, based in part on anticompetitive reputation effects from alleged predatory pricing.[131]

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122. *See* Zeller Corp. v. Federal-Mogul Corp., 1997-1 Trade Cas. (CCH) ¶ 71,805 (N.D. Ohio July 25, 1996) (dismissing complaint that alleged only that defendant could recoup predatory losses rather than recoup "more than" its losses), *aff'd*, 173 F.3d 858 (6th Cir. 1999); *see also* C.B. Trucking, Inc. v. Waste Management, Inc., 137 F.3d 41 (1st Cir. 1998) (affirming summary judgment for failure to produce evidence of below-cost pricing despite plaintiff's argument that district judge ruled on the motion without permitting discovery).

123. *See* Scripto-Tokai Corp. v. Gillette Co., 1994-2 Trade Cas. (CCH) ¶ 70,821 (C.D. Cal. Sept. 9, 1994) (granting summary judgment for failure to specify which variable costs were uniquely incurred in producing predatory output).

124. *See* Multistate Legal Studies, Inc. v. Harcourt Brace Jovanovich Legal & Prof'l Publ'g, 63 F.3d 1540 (10th Cir. 1995), *cert. denied*, 116 S. Ct. 702 (1996); Aventura Cable Corp. v. Rifkin/Narragansett S. Fla. CATV Ltd. Partnership, 941 F. Supp. 1189 (S.D. Fla. 1996); Servicetrends, Inc. v. Siemens Medical Sys., Inc., 870 F. Supp. 1042 (N.D. Ga. 1994).

125. Certainly, this is how the practicing bar appears to be reading the results. *See* Penelope A. Preovolos, Predatory Pricing and Unfair Trade Practices, 37th Annual Advanced Antitrust Seminar (Jan.-March 1998) (characterizing *Brooke*'s statement that bases for recovery are not easy to establish as a "masterpiece of understatement").

126. 51 F.3d 1191 (3d Cir. 1995).

127. *See id.* at 1196 n.4.

128. *Id.* at 1196 n.14 (defendant competed in only a single market, and no proof was offered that defendant's parent company—a newspaper chain—was pursuing a reputation effect strategy). *See also* Baker, *supra* note 117, cited by *Advo*, 51 F.3d at 1196 n.4.

129. 1995 Trade Cas. (CCH) ¶ 71,044 (E.D. La. 1995).

130. *See id.* at 11.

131. *See* Plaintiff's Complaint, United States v. AMR Corp., No. 99-1180-JTM (D. Kan. 1999). The government appears to be advancing a theory of financial predation and a complementary theory of reputation effect predation. Therefore, the analytic framework we develop for these theories appears to be relevant for this case. However, we refrain from commenting further on an ongoing litigation.

2. Airline Guidelines

Perhaps the most striking development since the *Brooke* case has been the recently proposed Department of Transportation Guidelines (DOT Guidelines), which explicitly recognize predatory pricing as a strategic problem, and which would allow proof of recoupment based on reputation effects.[132] The DOT Guidelines focus on the ability of a major air carrier dominating a city hub, like Chicago or Atlanta, to exclude competition and potential competition between the hub and directly connecting non-hub cities.[133] The observed strategic mechanism is a drastic expansion of capacity and lowering of fares by a locally dominant airline in response to new entry of an independent airline. Using the economic definition of predatory pricing, the DOT Guidelines would identify as predatory any response to new entry by a hub-dominant major airline that makes economic sense only because the major airline can exclude the entrant from the market and thereafter charge high fares.

From a strategic viewpoint, the notable thing about the new DOT Guidelines is their reliance on reputation effects to prove recoupment—the expected gains to the predator from deterring future entry by other airlines.[134] Therefore, even if the predator suffers sustained losses in a contested local market, such that recoupment in the local market appears doubtful, evidence that the predation deterred future entry into either the local market or the predator's other monopoly markets could presumably still establish recoupment.

In contrast to *Brooke*, the DOT Guidelines do not require proof of below-cost sales. Instead, they rely on a gross-revenue measure to identify predation.[135] Thus, a predatory response to new entry is defined as a capacity increase in a local hub market that causes the hub-dominant airline to forego more revenue than the new entrant's total capacity could otherwise have diverted from it—or simply yields lower revenue than would a "reasonable alternative strategy" for competing with the entrant.[136] The substitution of a gross revenue or output measure for the traditional cost test may be justified, because the special characteristics of airline markets make output expansion a particularly effective predatory strategy. Airlines are able to discriminate between customers with

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132. *See* DOT Proposal, *supra* note 5, ¶ 49,227-29. The Department of Justice has also come to view predatory pricing in airline markets in strategic terms. *See* Roger W. Fones, Predation in the Airline Industry, Address Before the ABA Forum on Air and Space Law, 11-12 (June 12, 1997), *available at* <http://www.usdoj.gov/atr/publicspeeches/1188.htm>; Plaintiff's Complaint in *AMR Corp.*, No. 99-1180-JTM.

133. *See Impact of Recent Alliances, International Agreements, DOT Actions and Pending Legislation on Air Fares, Air Service, and Competition in the Airline Industry*, 105th Cong. 2 (1998) (statement of Nancy E. McFadden, General Counsel, U.S. Dep't of Transportation).

134. *See* DOT Proposal, *supra* note 5, ¶¶ 49,228-29; Fones, *supra* note 132.

135. *See* DOT Proposal, *supra* note 5, ¶¶ 49,228-29.

136. The DOT Guidelines indicate that a reasonable alternative response to new entry would be to match the entrant's low fares without significantly increasing capacity. Alternatively, the hub-dominant airline might price its flights in the contested market in a manner consistent with its pricing in other markets where it competes on a sustained basis with new entrants.

great precision and can respond swiftly to competitor moves based on "real time" information about rivals.[137] Mobility of assets, including the ability to lease aircraft, permits rapid expansion of capacity in contested local markets.[138]

The main objection to the use of a gross revenue or output-based standard to measure predatory pricing is loss of certainty in business planning.[139] Because future demand, particularly in airline markets, may be difficult to predict, a major airline may face difficulty in determining whether it can lawfully expand its capacity to serve a local market following new entry.[140] On the other hand, cost determination in airline markets also presents difficulties due to secondary effects in other markets caused by flights on a specific city-pair route.[141] But despite the difficulties it poses in airline markets, a cost standard may provide a more secure basis for business planning.[142]

The DOT Guidelines conceive of the problem of airline predation in strategic terms. They do not attempt to define predatory pricing under a single legal formulation, but rather to identify the particular predatory strategy involved in local airline markets. This approach is consistent with modern economics, and it is the view taken in this article. While we would generally adhere to a cost-based approach, relevant costs would include long-run incremental costs in addition to short-run costs.

III. PROPOSED APPROACH

A strategic approach to predatory pricing would augment existing practice in two critical respects. First, it would explicitly permit proof of predation based on modern economics. Second, it would expand the standard efficiencies and business justification defenses to encompass procompetitive dynamic gains. In addition, we suggest the use of short- and long-run incremental cost rather than average cost in proving below-cost pricing and use of a discriminating burden

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137. *See* Russell A. Klingamar, *Predatory Pricing and Other Exclusionary Conduct in the Airline Industry*, 4 DEPAUL BUS. L.J. 281, 327-28 (1992); Raymond E. Neidl, *Can the Aviation Industry Shield Itself from Business Cycles?*, AIR & SPACE LAW, Spring 1999, at 3, 6.

138. For these reasons, the use of an output test in local airline markets rests on a firmer basis than earlier proposals for identifying predatory pricing based on substantial output expansion in anticipation of entry. *See* Williamson, *supra* note 71. In a typical industrial setting, substantial output expansion requires constructing a fixed-site plant that serves a national, regional, or other broad industrial market. Under these conditions, a strategy of output expansion would be costly since it would require large investment in advance of entry, involving high opportunity costs. Mobility of airline plants reduces these costs significantly.

139. *See* Fones, *supra* note 132, at 11-12.

140. Obviously, dramatic output increases, such as increasing local output tenfold, offer no planning difficulty.

141. *See* Robert M. Rowen, *The Dilemma of Predatory Pricing in the Airline Industry*, AIR & SPACE LAW, Winter 1999, at 1, 13.

142. Assured predictability is perhaps less vital under the cease and desist enforcement available to the DOT, which includes no punitive remedies. On the other hand, under the Sherman Act the risks of criminal and civil penalties and treble damage suits cause greater need for planning certainty, particularly safe harbors. In any event, the Justice Department included a cost standard in its output-based enforcement policy under the Sherman Act for airline predation.

of proof for the different legal elements within the proposed framework. However, neither of these latter suggestions is essential to our proposed strategic approach.

While the use of modern economics in proving predatory pricing is novel compared to recent practice in most of the lower courts, such an advance is implicit in the recoupment standard adopted by the Supreme Court. The recoupment requirement was designed to screen out cases where predation appeared unprofitable and hence irrational. The Court's skepticism about the rationality of predatory pricing was justified by the now dated economic authorities on which the Court relied.[143] However, modern economics has developed new, more sophisticated theories of how recoupment may be achieved consistent with rational behavior, and thus identifies economic conditions under which a predatory pricing strategy is plausible.

Accordingly, the proposed approach would permit the plaintiff to amplify its proof of predation by showing that, under the specific facts of the case, one or more strategic theories are economically plausible, and that surrounding economic conditions make recoupment likely in the light of such theory. Yet, this would not add a new element of proof. Proof of predatory pricing under modern theory would instead augment and complement existing approaches. A plaintiff could still bring a case without advancing modern strategic theory. However, under this proposal, a plaintiff could also base proof on well-founded strategic analysis whenever the facts warrant.

The proposed approach is consistent with *Brooke*. That decision permits proof of predatory pricing and recoupment based on a scheme of predation that excludes rivals and enables the predator to recoup predatory losses.[144] Proof of recoupment may be based on an actual price increase in the predatory market, increased concentration and entry barriers in the post-predation market, or on other relevant market conditions including market structure and conduct, which make recoupment likely in the future.[145] Therefore, proof that market conditions make recoupment probable under an identified and recognized strategic theory should satisfy this test. Perhaps because modern strategic theory was not presented to the Supreme Court in *Brooke*, a possible gap exists in predatory pricing coverage. Interpretation of the recoupment requirement to encompass modern analysis would close that gap.

A strategic analysis also has implications for the business justification defense, which would assume a larger role in the proposed analysis. The justification would encompass not only defensive responses to price cutting by rivals (for example, meeting competition) or temporary market conditions (for example, excess inventory), but also welfare-expanding dynamic efficiencies, such

143. *See supra* text accompanying notes 17-20, 34-35.

144. *See supra* text accompanying notes 99-104.

145. *See* Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 226 (1993); *see also* Multistate Legal Studies, Inc. v. Harcourt Brace Jovanovich Legal & Prof'l Publ'g, 63 F.3d 1540, 1554-56 (10th Cir. 1995); Rebel Oil Co. v. Atlantic Ritchfield Co., 51 F.3d 1421, 1434 (9th Cir. 1995).

as learning-by-doing and network economies. Strikingly, dynamic efficiencies also involve recoupment, but in this case the postpredation gain is procompetitive because recoupment comes not from output-contracting monopoly pricing, but from output-expanding efficiencies.

A. LEGAL ELEMENTS—PRIMA FACIE CASE

Consistent with existing law, the proposed rule would require proof of the following elements: (1) a facilitating market structure; (2) a scheme of predation and supporting evidence; (3) probable recoupment; (4) price below cost; and (5) absence of a business justification or efficiencies defense.[146] Together, the five elements embody a two-tier approach to predatory pricing focused on strategic conduct.[147] The first three elements would constitute the first tier and would operate as a screening mechanism. Thus, proof of a facilitating market structure, scheme of predation with supporting evidence, and probable recoupment would be threshold conditions for a strategically-based predatory pricing case. If the case survives the first tier scrutiny, analysis would then proceed to the second tier. In the second stage, the court would examine cost evidence and asserted business justifications to determine whether the conduct was in fact anticompetitive. The advantage of a two-tiered approach is that it allows cases to be eliminated on less burdensome factors before requiring demanding proofs of cost and business justification.[148] This approach appears congruent with *Brooke*, where the court identified factors essentially similar to those in our first tier test as necessary conditions for a predatory pricing suit.[149]

A prima facie case of predatory pricing would require proof of the first tier elements in addition to proof of below-cost pricing. The four elements making up the prima facie case are discussed in this section, and the efficiencies defense is discussed in a separate section. The plaintiff would generally have the burden of proving the prima facie elements, while the defendant would have the burden of proving the efficiency justification.

1. Facilitating Market Structure

The market structure must make predation a feasible strategy. This factor requires proof of sustainable market power—the ability to raise prices (or otherwise exploit consumers) over some significant but not necessarily unlimited period of time.[150] A predatory market structure most obviously exists when a dominant firm or small group of jointly acting firms has high market share,

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146. In *Brooke*, the Court included scheme of predation, exclusionary capability, and recoupment within the single element, recoupment. *See* 509 U.S. at 225. We have separated them into two elements for analytic clarity.

147. We are indebted to Richard Craswell for this observation. *See generally* Joskow & Klevorick, *supra* note 75, at 242 (similar two-tier approach, but with differences in content).

148. However, an enforcement agency screening cases might wish to consider the efficiencies issue before making the cost evaluation.

149. *See Brooke*, 509 U.S. at 226 (market structure facilitating predation, predatory scheme, and probable recoupment).

150. *See* Joskow & Klevorick, *supra* note 75, at 225-34.

and when there are both entry and reentry barriers.[151] But proof of initial high market share and entry barriers will not always be necessary to establish a facilitating market structure, as will be demonstrated below.

Entry barriers exist when a new market entrant faces costs that the incumbent predator need not bear, or no longer faces. The most frequent example is sunk costs—fixed cost investments that cannot be withdrawn from the market except at large sacrifice, such as the trackage of a railroad. While the predator has borne these costs in the past, they are now irretrievable. Thus, if challenged by new entry, the incumbent will rationally disregard such costs in its pricing decisions rather than lose the business. The entrant, on the other hand, must now incur such costs, and therefore faces risk of underpricing by an incumbent with sunk costs. Thus, as a result, sunk costs may act as an entry barrier, giving the incumbent power to raise price above the competitive level.

Reentry barriers exist when a firm that has left a market bears significant costs in seeking to reopen its business. As an example, a small airline forced to cease operations in a local market just as it is beginning to establish its brand name may have damaged its reputation as a reliable alternative to the established carrier. To reenter the market, it will have to slowly rebuild its reputation—a costly process. Reentry barriers combined with entry barriers give a successful predator the power to raise prices. The Supreme Court has emphasized that proof of predatory pricing requires proof that entry and reentry barriers continue to exist during the recoupment period.[152]

However, the courts have failed to see that successful past predation can itself operate as an entry and reentry barrier, particularly where reputation effects are present. In such cases, the would-be entrant anticipates that any attempt to enter the market will evoke a predatory response from the incumbent. Anticipating that consequence, the firm declines to enter. That is to say, the incumbent's past reputation as a predator deters future entry or reentry.[153]

Proof of a facilitating market structure will not always require an explicit showing of high concentration, or entry and reentry barriers. These factors are proxies for market power, but market power can also be proved directly by showing anticompetitive market effects. Therefore, if the incumbent is able to significantly raise prices after the prey's exit without inducing new entry or reentry, market power can be presumed. Such a presumption is supported by recent Supreme Court and lower court precedent, and is similar to the inference made under the rule of reason that proof of anticompetitive effects may serve as proof of market power.[154]

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151. *See generally* Ordover & Willig, *supra* note 5.

152. *See* Cargill, Inc. v. Monfort of Colo., Inc., 479 U.S. 104, 119-21 (1986).

153. *See infra* text accompanying note 318-19; *see also* LOUIS PHLIPS, *supra* note 32, at 220-21 (1995) (discussing the Mogul Steamship case, *see supra* text accompanying notes 22-23, and the *Advo* case, 51 F.3d 1191 (3d Cir. 1995)).

154. *See* Eastman Kodak Co. v. Image Technical Services, Inc., 504 U.S. 451, 463-68 (1992); FTC v. Indiana Fed'n of Dentists, 476 U.S. 447, 459, 460-61 (1986); NCAA v. Board of Regents of Univ. of

The use of this presumption is especially important in network industries, where, once the predator has gained a dominant market share, the market may have tipped so that it becomes too late to prevent monopoly. The presumption is of course rebuttable, because other economic factors, such as excess capacity, may explain the absence of entry. When these facilitating conditions are not shown, the court should be able to dismiss the case if the structural facts are sufficiently clear. Thus, predatory market structure, properly interpreted, would operate as a threshold screen, as the Supreme Court held in the *Brooke* case.

2. Scheme of Predation and Supporting Evidence

Proof of predatory pricing and recoupment require a showing that predation is plausible ex ante and probable ex post. Ex ante plausibility is shown by proof of a predatory scheme and supporting evidence. Ex post probability is shown by proof of subsequent exclusion of rivals or postpredation market conditions that make future recoupment likely.[155] We discuss the ex ante condition—proof of a predatory scheme and supporting evidence—in this section and the ex post conditions in the following section.

Under *Brooke* and *Matsushita*, proof of a predatory scheme, under which the predator can expect to recoup its predatory losses, is an essential element in a predatory pricing case. Moreover, the degree of plausibility of the predatory scheme vitally affects the standard of evidentiary proof for recoupment. If the alleged predatory scheme is only weakly plausible, as the Court found in *Brooke* and *Matsushita*, more persuasive evidence of recoupment is required.[156] Illuminating the stringency of this requirement, the Court in *Brooke* subjected the evidence to demanding analysis so as to make it doubtful that any claim of multi-firm predation could have survived the Court's scrutiny. However, where the predatory theory is less problematic, proof of market conditions enabling probable recoupment, while still required, more readily leads to the conclusion of recoupment. In any event, taken together, the alleged scheme of predation and postpredation market conditions must add up to a compelling theory of predation.

The Court found the alleged predatory scheme in *Brooke* implausible because the scheme appeared to require sustained tacit coordination between multiple firms without explicit communication or agreement on a predatory strategy and

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Okla., 468 U.S. 85, 109, 120 (1984); Rebel Oil Co. v. Atlantic Richfield Co., 51 F. 3d 1421, 1434 (9th Cir. 1995) ("direct proof of market power" in predatory pricing case); 7 PHILIP AREEDA, ANTITRUST LAW ¶ 1511 (1986). *See generally* Steven C. Salop, *The* Kodak *Case, the First Principles Approach, and Antitrust at the Millennium*, 68 ANTITRUST L.J. 187 (2000) (explaining logic of defining market power in terms of conduct and effects, and citing additional authorities).

155. *See generally* AREEDA & HOVENKAMP, *supra* note 35, ¶ 726d.4 (ex post evidence).

156. *See Brooke*, 509 U.S. at 226, 228 (exacting scrutiny of recoupment evidence where predatory scheme was "least likely means of recouping predatory losses"); Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 587 (1986) (more persuasive evidence needed when predatory claim implausible); *cf.* First Nat'l Bank v. Cities Serv. Co., 391 U.S. 253, 277-80 (1968) (requiring highly persuasive evidence in order to prevail on antitrust conspiracy claim).

a mechanism for recoupment.[157] In the absence of a focal point for coordinated action, it was unclear how the alleged predators could overcome cheating and free-riding problems in executing a predation and recoupment strategy.[158] The Court also thought the predatory scheme was implausible in *Matsushita*, even though it involved alleged agreement between the alleged predators, because of the inherent difficulties of orchestrating a coordinated predatory pricing and recoupment strategy among competing firms.[159]

The predation theories discussed here stand on a stronger foundation of economic theory. Rigorous economic analysis, developed over the last thirty years using the tools of applied game theory, identifies the economic conditions under which predatory pricing can be rational, profit-seeking conduct by a dominant firm. Expected or anticipated recoupment is intrinsic to these theories, because without such an expectation, predatory pricing is not sensible economic behavior. Therefore, modern theories, when factually supported, may sustain the plausibility of a predatory scheme.[160]

3. Probable Recoupment

Under *Brooke* and *Matsushita*, a predatory scheme, however plausible and well supported by ex ante evidence, violates the antitrust laws only if ex post evidence shows that the alleged predatory pricing: (1) excludes or disciplines rivals or potential rivals, and (2) thereby injures competition and consumers by enabling the predator to raise prices or lower quality, or dangerously threatens to do so.[161] By logical extension, the injury to competition and consumers may occur in either the predatory market or in a strategically related market where

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157. *See Brooke*, 509 U.S. at 227.

158. *See id.* at 240.

159. *See Matsushita*, 475 U.S. at 590-95.

160. When modern theory has been properly briefed to the Supreme Court in other types of antitrust cases and when convincing factual evidence supports the predatory or exclusionary theory, the Court has been willing to follow modern theory. *See* Eastman Kodak Co. v. Image Technical Services, Inc., 504 U.S. 451 (1992), *cited with approval in Brooke*, 509 U.S. at 229.

161. Predatory pricing might appear socially beneficial in all cases through the lower prices it immediately brings to consumers, but that would neglect the vital need to protect the competitive process and thereby the long-run welfare of consumers and society. Predation harms competition and consumers over the longer period because it permits the exclusion of equally or more efficient firms, which is to undermine competition on the merits. While it would be possible for an economic system to pursue social welfare without regard to the effect on competition, that is not the premise of the antitrust laws. Instead, the antitrust laws have made competition the preferred and chosen instrument by which consumer and social welfare are to be achieved. Thus, predatory pricing presumptively harms consumers by harming competition itself. The Supreme Court has recently reaffirmed this principle in a unanimous decision written by Justice Breyer, stating that even when a competitive restraint has caused no immediate injury to consumers, it can still be unlawful if it threatens to undermine competitive conditions or the processes of competition. *See* NYNEX Corp. v. Discon, Inc., 525 U.S. 128, 134-35 (1998); *see also* Grappone, Inc. v. Subaru of New England, Inc., 858 F.2d 792, 794 (1st Cir. 1988) (noting in a majority opinion by Justice Breyer that antitrust law protects the competitive process in order to achieve low, economically efficient prices, efficient production methods and innovation). *See generally* Joseph F. Brodley, *The Economic Goals of Antitrust: Efficiency, Consumer Welfare, and Technological Progress*, 62 N.Y.U. L. REV. 1020, 1023-24 (1987).

the effects of the predation are felt.[162] In either case, the exclusion or disciplining of rivals or potential rivals is the intended instrument of the predatory scheme, and the anticipated effect is the future raising of prices or increased revenues in a strategically related market. Together, the two elements establish that the predatory scheme is not only plausible in itself, but had its planned effect on rivals and injures consumers either now or in the foreseeable future. For clarity of analysis, the two effects—exclusion of rivals and injury to competition and consumers—are discussed separately.

a. Exclusionary Effect on Rivals. The means by which predatory pricing works its ultimate injury to competition and consumers is through its exclusionary effect on rivals or potential rivals. Exclusionary effects involve the exclusion of a rival or potential rival from the predatory market or a strategically related market, or the disciplining of the rival's competitive conduct. At a minimum, this requires proof that the below-cost pricing was capable of achieving its intended exclusionary effect on rivals or potential rivals, as the Supreme Court noted in *Brooke*.[163] While such pricing must have been a substantial factor in producing this result, the defendant's low prices need not have been the exclusive cause of the victim's market exclusion or threatened exclusion; indeed, other factors may have contributed, such as increased raw material costs or reduced demand. It suffices to show that the alleged unlawful conduct was a "material cause," "a substantially contributing factor," or "among the more important causes."[164] On the other hand, predation that was only a "minor" contributing factor to the victim's forced exclusion or threatened exclusion would be insufficient to establish an exclusionary effect.[165]

A second type of exclusionary effect is the discipline of rivals. In this case, the rivals are not excluded from the market; instead, their competitive conduct is inhibited. While some writers define predatory pricing solely in terms of rival exclusion,[166] discipline of rivals is an accepted anticompetitive effect, particularly by legal authorities.[167] In fact, the disciplining of rivals is itself exclusion-

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162. For example, below-cost pricing in one market may inhibit entry in another market by creating a reputation effect that the predator will respond aggressively if a new firm enters the second market. *See infra* Part V.B.

163. *See Brooke*, 509 U.S. at 225.

164. 2 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 363a (rev. ed. 1995). Some courts have required a showing that the antitrust violation be the "predominant cause," but this view appears excessive and has been criticized. *Id.*

165. *Id.* Proof that the predatory price was a substantial factor in causing the victim's injury is the normal requirement in antitrust cases, because proof that an act is the sole or predominant cause of the injury might preclude effective enforcement. *See* Zenith Radio v. Hazeltine Research, Inc., 395 U.S. 100 (1969); Irvin Indus., Inc. v. Aerospace Corp., 974 F.2d 241, 245 (2d Cir. 1992). *See generally* AREEDA & HOVENKAMP, *supra* note 35, ¶ 657.

166. *See* Brodley & Hay, *supra* note 66, at 741 (describing "classical view"); *see also* TIROLE, *supra* note 5, at 373; Ordover & Willig, *supra* note 5, at 9.

167. *See Brooke*, 509 U.S. at 223-25; AREEDA & HOVENKAMP, *supra* note 35, ¶ 723a; BORK, *supra* note 5, at 144; Milgrom & Roberts, *supra* note 50, at 112.

ary, because its object is to exclude the growth and expansion of the prey or the prey's entry into new markets. Proof of a disciplining effect requires the plaintiff to show three elements: (1) the victim is a rival firm whose competition threatens or potentially threatens the profits of the predator; (2) following the period of below-cost pricing, the victim raised its prices, became less aggressive, or otherwise restrained its competitive conduct—or that the below-cost pricing was capable of producing this result; and (3) the below-cost pricing was a substantial factor in causing these exclusionary effects.[168]

The *Brooke* case provides an illustration of possible price discipline (although the plaintiff's case ultimately failed on the issue of recoupment). As explained above, the victim, Liggett, had introduced low-cost, nonbranded cigarettes that threatened the profits of the larger manufacturers, including the defendant Brown and Williamson. After eighteen months of sustained below-cost pricing by defendant, Liggett raised its prices and essentially became a price follower. Below-cost pricing appeared to have been a factor in causing Liggett to raise its prices and to become less aggressive, although it was only after five successive price cuts by defendant that Liggett ultimately reversed its price cutting policies.[169]

b. Injury to Competition and Consumers. Under *Brooke* and *Matsushita*, proof of an injury to competition, actual or probable, is an essential element of a predatory pricing case. This requires evidence either that: (1) the alleged predatory scheme caused prices to rise above the competitive level in the predatory market or in another strategically-linked market, or held prices at a supracompetitive level when they otherwise would have fallen; or (2) market conditions and the predator's conduct make future recoupment likely under the alleged scheme.[170] Since *Brooke* requires only a showing of probable recoupment, proof of actual recoupment is not a necessary ingredient of predation. Indeed, if actual recoupment were required, a predator might be able to avoid

168. While *Brooke* held that disciplining predation can clearly violate the Robinson-Patman Act, some might question whether it also violates section 2 of the Sherman Act because predation that does not exclude rivals will not increase market concentration. *Cf.* Indiana Grocery, Inc. v. SuperValu Stores, Inc., 864 F.2d 1409, 1416 (7th Cir. 1989) (price disciplining by firm without individual monopoly power that reduces competition through joint action in oligopolistic market not covered by Sherman Act). However, when a single firm—or group of firms acting pursuant to an agreement—has monopoly power or the dangerous probability of attaining it, disciplining predation which inhibits competitive pricing by rivals may intensify or maintain such power, and hence violate the Sherman Act. *See* United States v. Empire Gas Corp., 537 F.2d 296 (8th Cir. 1976) (disciplining predation can establish attempt to monopolize), *cert. denied*, 429 U.S. 1122 (1977); *cf.* United States v. E.I. Dupont de Nemours & Co., 351 U.S. 377, 391 (1956) (monopoly power as power to control price); *Indiana Grocery*, 864 F.2d at 1414 (monopoly power as "ability to cut back the market's total output and so raise price"). By contrast, in *Brooke* the predatory pricing claim necessarily rested on the Robinson-Patman Act because single-firm dominance was lacking and the power to raise prices through the cooperative action of several firms without agreement was unproved.

169. *See Brooke*, 509 U.S. at 216.

170. *See id.* at 225; *Matsushita*, 475 U.S. at 590-91.

liability by delaying recoupment until risk of suit has passed, perhaps because the passage of time has made it difficult to rebut the claim that other economic conditions caused the price increase.

Consistent with *Brooke*, a sufficiently strong showing of an increased ability to raise and maintain high prices as a result of successful predation could meet the recoupment requirement, even when the strategic theory is only weakly plausible or not well-articulated. In such a case, the evidence will have shown that the alleged predator has excluded a rival from a market with below-cost pricing, has at least partly recouped its predatory losses subsequently by raising price, and likely will be able to maintain above-cost prices for a duration sufficient to fully recoup its predatory losses. With such evidence of actual recoupment already in progress, it seems reasonable to *infer* a coherent predatory strategy without requiring the plaintiff to completely spell out and prove the logic of the strategy. The risks of overdeterrence in such a case seem minimal because the Supreme Court has made clear that the standard of proof in predatory pricing cases is exacting, and the post-*Brooke* cases show that it is exceedingly difficult to satisfy that standard, absent a persuasive theory of predation.[171]

On the other hand, we propose that the evidentiary standard for proof of probable recoupment should be less demanding when proof of the predatory scheme rests on a coherent strategic theory, supported by evidence of market structure and conduct. As suggested above, *Brooke* permits such an interpretation because the conclusion of probable recoupment is drawn jointly from the plausibility of the predatory theory and the postpredation market conditions. When, as in *Brooke*, the theory is weak, the postpredation evidence must be stronger.

Where, however, the predatory theory is persuasive, the postpredation evidence standard should be less exacting, though, of course, still required. Suppose, for example, that the plaintiff articulates a coherent theory of strategic predatory pricing based on modern economic analysis, that the evidence shows that postpredation market structure and conditions are consistent with the required assumptions of the theory, that the actions of the defendant and other market participants have also been congruent with the theory, and that the plaintiff has been excluded from one or more markets as a result of below-cost pricing. With this evidence of postpredation market structure and conduct in hand, it seems reasonable to infer probable recoupment. Accordingly, this proposal advances an interpretation of *Brooke* that enables a plaintiff to prove recoupment based on modern strategic theory without having to show actual recoupment.

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171. *See, e.g.*, Multistate Legal Studies, Inc. v. Harcourt Brace Jovanovich Legal & Prof'l Publ'g, 63 F.3d 1540, 1549 (10th Cir. 1995); Advo, Inc. v. Philadelphia Newspapers, Inc., 51 F.3d 1191, 1195-97 (3d Cir. 1995); C.B. Trucking, Inc. v. Waste Management, Inc., 944 F. Supp. 66, 69 (D. Mass. 1995). *See generally supra* text accompanying notes 119-24.

4. Price Below Cost

The final element in establishing a prima facie case of predatory pricing is proof of sales below cost. A cost standard can be faulted as difficult and expensive to prove, and also under-inclusive, because prices above cost can be both predatory and injurious to competition.[172] Despite these problems, a cost benchmark is generally necessary for effective business planning for an activity as ubiquitous as pricing. Moreover, since at least 1975, American courts have uniformly followed a cost standard in evaluating predatory pricing.

The cost standards that the courts have most often used are average total cost (ATC) and average variable cost (AVC). As previously discussed, under current law, a price above ATC is conclusively lawful, while at the other extreme, in most jurisdictions, a price below AVC is presumptively *unlawful*—assuming the other preconditions of *Brooke* are satisfied.[173] A price between AVC and ATC is either presumptively or conclusively lawful, depending on the law of the particular federal circuit.[174] In circuits where the price is presumptively lawful, the presumption can be rebutted by other evidence of predation, particularly intent and market structure.[175] However, this article urges that an incremental cost standard provides a superior measure for assessing predation. Therefore, we would substitute average avoidable cost for AVC, and long-run average incremental cost for ATC.

a. Proposed Incremental Cost Standard. In proposing an incremental cost standard we follow in substantial part the recent proposal of William Baumol, who similarly urges substitution of average avoidable cost for AVC.[176] Although this should be the lower-bound cost test, we would add an upper-bound cost measure of long-run average incremental cost as a substitute for ATC, a proposal originally made by Joskow and Klevorick.[177] Thus, we adhere to the dual cost approach that many courts presently follow, but reformulate the cost test to approximate more closely the theoretically correct cost standard.

Average avoidable cost (AAC) is the average per unit cost that the predator would have avoided during the period of below-cost pricing had it *not* produced the predatory increment of sales.[178] It is immediately apparent that AAC is a

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172. *See* Schmalensee, *supra* note 78, at 1021 (above-cost pricing based on present costs may exclude dynamically more efficient rival whose costs would fall over time).

173. *See Brooke*, 509 U.S. at 222-23 (finding price above ATC presumptively lawful); CIRCUIT-BY-CIRCUIT, *supra* note 84, at ch. III.

174. *See* CIRCUIT-BY-CIRCUIT, *supra* note 84, at ch. III.

175. *See id.*

176. *See* Baumol, *Predation*, *supra* note 72, at 58-59.

177. *See* Joskow & Klevorick, *supra* note 75, at 252 & n.79.

178. For example, as discussed in Craswell and Fratrik, if a grocery store were to discontinue a particular product, such as Crest toothpaste, the only costs it might avoid would be the wholesale price of Crest. *See* Craswell & Fratrik, *supra* note 4, at 26-27. All of the other expenses would remain the same. However, if the store were to eliminate an entire product line, such as nonprescription pharmacy products, there would be other cost savings, such as reduced store personnel and advertising. Therefore,

short-run measure because, like AVC, it excludes any sunk costs incurred before the period of predation—as these are inescapable. However, unlike AVC, AAC does not require an allocation between fixed and variable costs, which is often highly controversial. AAC also more closely approximates marginal cost because it includes all costs, whether fixed or variable, that could have been avoided had the defendant not made the predatory sales. While AAC presents its own complexities,[179] it is more theoretically correct than AVC and probably easier to calculate.

Long-run average incremental cost (LAIC) is the per unit cost of producing the predatory increment of output whenever such costs were incurred. More precisely, the LAIC of a product is the firm's total production cost (including the product), less what the firm's total cost would have been had it not produced the product, divided by the quantity of the product produced.[180] LAIC thus includes all product-specific costs incurred in the research, development, and marketing of the predatory product or increment of sales even if those costs were sunk before the period of predatory pricing.[181] In addition, LAIC logically includes any costs incurred to effectuate the predatory scheme following formation of the predatory strategy. LAIC is a superior cost measure to ATC for a multi-product firm because it does not require courts to allocate joint and common costs, an undertaking that lacks a precise methodology and is particularly unsuited to jury resolution.[182] Moreover, LAIC measures the present worth of the productive assets by replacement costs, and not by historic costs, which may give little indication of their current value.[183]

LAIC is a necessary benchmark in addition to short-run cost, because sales below LAIC may reflect a strategy of sacrificing current profit in order to exclude or discipline a more efficient rival and thereafter hold price at the monopoly level. Such conduct, if not otherwise explainable, is predatory, and a predatory pricing rule that excluded it would be seriously under-inclusive.

The risk of under-inclusion is particularly acute for intellectual property. A short-run cost test provides little protection against predatory pricing involving intellectual property because, after the product is developed and launched, AAC or AVC may approach or equal zero. In computer software, for example, the short-run incremental cost of a program downloaded from the Internet is nil. As a result, there can be no sale below AAC. An AVC standard does little better

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a price that would not be below cost for Crest alone might well be below cost if it were part of a general reduction in prices for all nonprescription pharmacy products. *See id.*

179. *See id.* at 29-35 (discussing revenue spillover, price effects, timing, and other difficulties associated with an avoidable cost standard).

180. *See* Baumol, *Policy for Prevention*, *supra* note 72, at 9 n.26, *quoted in* Joskow & Klevorick, *supra* note 75, at 252 n.79. Baumol used the term "average incremental cost" to delineate long-run average incremental cost. We prefer LAIC because it specifically identifies the long-run factor.

181. LAIC is, in essence, a concept of long-run avoidable cost because it encompasses any costs that would not have been incurred had the product not been produced.

182. *See* Joskow & Klevorick, *supra* note 75, at 252 n.79.

183. *See* 1 ALFRED E. KAHN, THE ECONOMICS OF REGULATION 77-83 (1970).

because the average variable costs of computer software continuously decline and may approach insignificance as sales volume becomes sufficiently high.[184] Therefore, the only tenable cost standard for intellectual property must be a long-run cost measure. LAIC is superior to ATC as a measure for intellectual property because LAIC emphasizes that the relevant costs relate to research, development, marketing, and production of the predatory product or service, rather than to some larger category of sales.[185]

b. Presumptions and Burden of Proof. Applying these cost concepts, we would treat a price above ATC as conclusively lawful (following Supreme Court precedent in *Brooke*),[186] but otherwise would substitute for ATC the similar, but economically more accurate, measure of LAIC. A price below AAC would be presumptively unlawful (assuming the other elements of proof of liability are satisfied). When price is below this level, the defendant would then have the full burden of persuasion to show that the low price was necessary to achieve competition-enhancing efficiencies. Consistent with the standard for proof of liability,[187] the efficiencies defense would be applied from an ex ante perspective: would a representative firm in the industry have anticipated the conduct to be profit-maximizing in the absence of exclusionary effects?

If the predator has priced below LAIC (but above AAC), the burden of proof would be divided between the plaintiff and the defendant. First, the defendant would have an initial burden of production—of coming forward with some tangible evidence of efficiency or legitimate business purpose. Once the defendant has offered such an explanation, the burden of persuasion would shift to the plaintiff to persuade the court that the pricing conduct was predatory.

Placing an initial burden of production on the defendant to show efficiencies when the price is above AIC (but below LAIC) is justified because the first four

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184. *Cf.* Benjamin Klein, *An Economic Analysis of Microsoft's Conduct*, 14 ANTITRUST 38, 44 (1999) (marginal cost of browser close to zero).

185. An equally important issue in intellectual property, and generally in multi-product firms, is the calculation of price. Does the price include the value of indirect benefits received at a *later time*? In predation by a single firm, the fact that the predator makes increased sales in the future as a result of the current predatory sales would not prevent a finding of below-cost pricing if the current sales price is below cost. However, this does not mean the pricing is unlawful since the price may be justified under an efficiencies defense. As a necessary element in the prima facie proof of predatory pricing, the cost test serves a screening function. The cost test is already sufficiently challenging without adding the complexities of an efficiencies trade-off. For that reason, benefits received at a later time are better analyzed at the efficiencies defense stage. The same conclusion follows if the below-cost pricing enables increased future sales *in another market*. The future revenues from such enhanced out-of-market sales should not be added in determining whether the pricing satisfies the below-cost element of the prima facie case (but would be admissible under an efficiencies defense to show that the net effect is pro-competitive). This reasoning is not limited to intellectual property, but applies generally to future sales induced by below-cost pricing. *See infra* text accompanying notes 198-208 (developing criteria for dynamic efficiencies defense).

186. *See Brooke*, 509 U.S. at 223; *see also supra* text accompanying notes 83-84.

187. *See* AREEDA & HOVENKAMP, *supra* note 35, ¶ 740 (reasonable anticipated costs as test for below-cost sales).

elements will have established not only that the price is below some measure of cost, but also that industry structure makes predatory pricing feasible, specific market conditions facilitate and enable the alleged predatory strategy, the prey has been excluded or disciplined, and, as a result, the price has increased or is likely to increase. Such a record properly puts some burden of explanation on the defendant even when price is above AAC. At the same time, the presence of the specified preconditions mandated by *Brooke* assures that defendants will not be required to justify all challenged price cutting, as the preconditions confine possibly suspect price reductions to a narrow range of cases. Moreover, the defendant is well placed to provide such an explanation, because it knows best the efficiencies and business reasons for its actions.

B. LEGAL ELEMENTS—BUSINESS JUSTIFICATION

A business justification or efficiencies defense serves as a means of eliminating cases where below-cost pricing by a firm with market power is likely to be welfare-enhancing, rather than predatory.[188] In these cases, the sacrifice of present profits through low pricing is justified for reasons other than exclusion or disciplining of rivals. The defense therefore serves as a necessary shield against an overly inclusive legal rule. The predatory pricing cases have recognized a business justification defense in a variety of factual settings, but have created no clear standards to guide the application of this defense.[189]

The burden of proving a business justification defense is generally placed on defendants in antitrust cases, on the theory that they have superior access to the information, which is under their control.[190] As noted above, in applying the proposed approach, the full burden of proof is placed on the defendant when price is below short-run cost. When the price is *above* short-run cost (but not above long-run incremental cost), the defendant would have an initial burden of producing evidence of efficiencies, after which the burden of persuasion would shift to the plaintiff.[191] Below-cost pricing may be justified either as a defensive response to price competition or as a procompetitive effort to expand the market by lowering costs or expanding demand.

1. Defensive Price Cutting

When a market becomes more competitive, either because of new entry or other changed market conditions, it is often a profit-maximizing response to cut price. Such price cuts expand output and increase consumer welfare, and do not exclude competitors when it is efficient for them to remain in the market. Therefore, we would recognize a legitimate business justification for a price

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188. *See, e.g.*, Transamerica Computer Co. v. IBM Corp., 481 F. Supp. 965, 990-93 (N.D. Cal. 1979), *aff'd*, 698 F.2d 1377 (9th Cir. 1983), *cert. denied*, 464 U.S. 955 (1983). *See generally* CIRCUIT-BY-CIRCUIT, *supra* note 84, at 71-76.

189. *See* CIRCUIT-BY-CIRCUIT, *supra* note 84, at 71-76.

190. *See* 4 AREEDA ET AL., ANTITRUST LAW, ¶ 976d (rev. ed. 1998).

191. *See supra* text accompanying notes 185-86.

reduction below LAIC—but not below short-run cost—when it is a short-run profit-maximizing response to a competitive price offered by a rival. By a short-run profit-maximizing response, we mean a price that maximizes the incumbent's immediate or short-run profit even though its rival remains in the market. Such a price will thus always be above the incumbent's short-run cost but may well fall below LAIC. Under these conditions, the reduced price is simply an independently justified, profit-maximizing response to the prevailing market conditions.[192] Note that the incumbent's price may be profit-maximizing, even if it undercuts the rival's price, so long as it remains above the incumbent's short-run costs.[193] For example, such a profit-maximizing price cut is likely to occur when the incumbent has high sunk costs and excess capacity such that its short-run costs are very low.[194] Rivals who have similarly high sunk costs are likely to remain in the market. In such cases, consumers benefit from the lower prices, and, at the same time, there is no long-run anticompetitive effect.[195]

More generally, in defensive price cutting, a firm prices below its cost in response to price reductions by its rivals or to market events outside the firm's control, seeking to maintain its competitive position in the market. Examples of defensive price cutting might include price reductions that meet the lower price of a rival who initiated the price cutting or minimize losses stemming from

192. We are indebted to Barry Nalebuff for this observation. *See* Craswell & Fratrik, *supra* note 4, at 21-22 (justifying temporary price cuts where a new market entrant creates temporary excess capacity).

193. If the price cut goes below short-run cost, it cannot be profit-maximizing (but might still fall within one of the other explicit defenses, such as disposal of excess inventory).

194. *See* Joskow & Klevorick, *supra* note 75, at 253. But, such a defense would not apply if the incumbent had pursued a deliberate strategy of investing ahead of demand, including reinvesting in a less efficient plant, to deter entry. *See id.* at 254. While in a technical sense the price might be above short-run costs, that result occurs only as an inherent part of a larger predatory investment strategy, which would not be profit-maximizing except on the prospect of eliminating competition. *Cf.* James E. Meeks, *Predatory Behavior as an Exclusionary Device in the Emerging Telecommunications Industry*, 33 WAKE FOREST L. REV. 125, 131 (1998) (viewing predatory pricing in strategic terms; dominant-firm price cutting that raises entry barriers and harms potential competition is anticompetitive when it appears probable that the low pricing will not be maintained if entry is deterred).

195. Introduction of a defense based on short-run profit maximizing raises issues of judicial feasibility. Admittedly, a standard based on profit maximization poses difficulties. *See* AREEDA & HOVENKAMP, *supra* note 35, ¶ 736c.2. But we introduce this concept only as an affirmative defense in situations where the burden of proof would heavily favor the defendant. In presenting an efficiencies defense where, as here, the price is above short-run cost, the defendant's initial burden is only to come forward with some tangible evidence of efficiencies or legitimate business purpose. As a practical matter, the defendant can meet its initial burden simply by asserting the defense and then showing that it had some reasonable basis for expecting its price to be profit-maximizing in the short run. The burden of persuasion then shifts to the plaintiff on a complex issue where the evidence is all in the defendant's hands and the defendant need only show that it had a reasonable expectation of being able to maximize its short-run profit. Realistically, this means the plaintiff is likely to prevail only in egregious cases. *See, e.g.*, Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 609-11 (1985) (finding violation of antitrust laws where defendant ski resort operator refused to continue long-standing marketing arrangement without asserting any legitimate business purpose). Juries are, of course, rather unpredictable, but the strong judicial supervision in predatory pricing cases protects defendants from liability in nonegregious cases. *See supra* text accompanying notes 90-96 and 119-24.

unexpected market developments—such as excess capacity, product obsolescence, or shrinking demand.[196]

The courts have generally upheld most types of defensive below-cost pricing as compelled by competition.[197] Such pricing benefits consumers in the short run through lower pricing and may promote long-run consumer and economic welfare in cases where it preserves the price cutter as a competitor or potential competitor in the challenged market. Indeed, the freedom to respond to aggressive price cuts by rivals or to sudden changes in economic conditions may be crucial in giving firms an incentive to create and develop markets in the first place.[198]

2. Market-Expanding Efficiencies: Promotional Pricing, Learning-by-Doing, and Network Effects

In market-expanding price cutting, the firm reduces price to increase demand for its product or to lower costs. Just as a theory of price predation involves two different markets—the predatory market and the recoupment market—so, too, does a market-expanding efficiency defense. The market in which the price is held below cost is the predatory market and the market in which the investment earns its return is the recoupment market. In contrast to predatory pricing, efficient below-cost pricing in the market-expanding case always involves a welfare enhancement in the recoupment market, either by reducing cost or shifting out demand. The examples of efficiencies discussed below are all dynamic, where the predatory and recoupment markets are markets for the same product at different points in time; promotional pricing and network externalities shift out future demand curves, while learning-by-doing shifts down future cost curves. From a more general perspective, however, efficiencies involving two markets need not be dynamic and could involve products sold contempora-

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196. *See generally* AREEDA & HOVENKAMP, *supra* note 35, ¶¶ 746, 748; CIRCUIT-BY-CIRCUIT, *supra* note 84, at 71-76; Edward H. Cooper, *Attempts and Monopolization: A Mildly Expansionary Answer to the Prophylactic Riddle of Section 2*, 72 MICH. L. REV. 375, 437-38 (1974).

197. *See* CIRCUIT-BY-CIRCUIT, *supra* note 84, at 71-76.

198. The courts appear divided, however, on whether pricing below short-run costs is justified in order to meet the lower price of a competitor. *Compare* ILC Peripherals Leasing Corp. v. IBM Corp., 458 F. Supp. 423, 433 (N.D. Cal. 1978) ("A company should not be guilty of predatory pricing, regardless of its costs, when it reduces prices to meet lower prices already being charged by its competitors."), *aff'd sub nom.* Memorex Corp. v. IBM Corp., 636 F.2d 1188 (9th Cir. 1980) (per curiam), *cert. denied*, 452 U.S. 972 (1981), *and* Richter Concrete Corp. v. Hilltop Basic Resources, Inc., 547 F. Supp. 893, 909 (S.D. Ohio) (below-cost price not predatory so long as it is not intended to destroy competition), *aff'd*, 691 F.2d 818 (6th Cir. 1982), *with* California Computer Products Inc. v. IBM Corp., 613 F.2d 727, 743 (9th Cir. 1979) (pricing below marginal costs necessarily frustrates competition on the basis of efficiency), *and* SuperTurf, Inc. v. Monsanto Co., 660 F.2d 1275, 1281 (8th Cir. 1981) (pricing above average variable cost, but below fully-allocated costs, is socially optimal and "reasonable"). *See generally* CIRCUIT-BY-CIRCUIT, *supra* note 84, at 74-76.

In our view, the latter position is correct. A monopoly or dominant firm should not be permitted to sell below its short-run costs to meet the price of a new entrant or smaller rival. If the rival's price is sustainable, it will almost surely be above short-run cost. To allow a predator to price below its short-run cost frustrates a market test based on the relative efficiency of the two firms.

neously. For example, an airline might cut prices on discount economy fare tickets to justify additional flights and sell more business class tickets, or a publisher might sell newspapers below cost in order to expand circulation and sell more advertising.[199]

Market-expanding price cutting raises more difficult issues than defensive price cutting because it involves an aggressive move that may either be procompetitive and output-expanding, or injurious to competition by excluding or disciplining rivals without compensating efficiencies gains. To sort out these effects, a market-expanding business justification defense would have three threshold requirements:

(1) *Plausible efficiencies gain.*

The increased sales resulting from the below-cost pricing plausibly increases efficiencies—for example, reducing cost through learning-by-doing or other increasing returns to scale effects.

(2) *No less restrictive alternative.*

The efficiencies gained cannot reasonably be achieved by practical means that do not require selling below cost, or by maintaining the low prices over a shorter period of time.

(3) *Efficiency-enhancing recoupment.*

Recoupment of the investment in below-cost sales stems from efficiency-enhancing factors—for example, higher product quality or lowered cost—rather than from increased profits through eliminating or disciplining a rival.

The defendant would have the burden of proving the first and third elements—efficiencies gain and efficiency-enhancing recoupment. However, the burden of establishing the second element—no less restrictive alternative—should be allocated between the parties. In proving the second element, the plaintiff would

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199. Evaluation of the efficiencies defense in market-expanding efficiencies cases may raise issues concerning the pricing of product combinations or package licensing. In analyzing such cases we suggest that the efficiencies defense be based on whether the multiple products are separate or are part of a single product. If components are sold in combination, we would find no predatory pricing if the price of the combination remains above cost. *See* Kentmaster Mfg. Co. v. Jarvis Products Corp., 164 F.3d 1243 (9th Cir. 1999); AREEDA & HOVENKAMP, *supra* note 35, ¶ 749. If one or more of the products are also sold separately, we would require as a condition for prima facie legality that the price of each separately sold component and the price of the combination be above the relevant level of costs. *See* Baumol, *Predation*, *supra* note 72, at 60-61. To determine whether products are separate, we would generally apply the same demand-based criteria as used in tying law, such as whether other sellers provide the multiple products separately, whether independent suppliers exist, and whether consumers want to purchase the goods separately. If, based on these criteria, the products are separate, then, as in the case of dynamic efficiencies, a successful efficiencies defense might be sustained, but would require proof that the sales below cost are procompetitive on balance. This would require a showing that the below-cost pricing would achieve a plausible efficiencies gain, that it provides the reasonably least restrictive alternative to accomplish this, and that recoupment stems from efficiency factors, rather than from merely eliminating or disciplining a rival, as discussed immediately below, *see infra* Part III.B.

have the burden of identifying one or more plausible less restrictive alternatives, after which the burden would shift to the defendant to show that such alternatives were either not feasible or not, at the time, reasonably foreseeable.[200] When both efficiencies and anticompetitive effects are substantial, the two effects must be compared to determine which predominates, as is done under current agency guidelines for other types of transactions.[201]

This Article identifies three types of market-expanding efficiency defenses: promotional pricing, learning-by-doing, and network externalities. These are all dynamic efficiencies that explain how higher sales resulting from lower prices might increase future profits with no exclusionary or disciplining effect. Typically, they involve new products or new markets. Evaluation of market-expanding efficiencies may raise difficult issues of characterization. On the one hand, market expansion provides procompetitive explanations for recoupment of losses from below-cost sales. On the other hand, the mere presence of these efficiencies does not preclude a coexisting predatory strategy to exclude or discipline rivals. Therefore, it is important to show whether dynamic efficiencies are sufficient to justify the present losses from below-cost prices. Only when this condition is shown should an efficiencies defense involving dynamic economies be recognized.[202] When recognized dynamic efficiencies and anticompetitive effects are both present, a balancing approach is necessary, as specified above.[203]

a. Promotional Pricing.[204] A profit-maximizing firm with no exclusionary purpose might temporarily price below its cost in order to induce consumers to

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200. This is consistent with existing requirements for proof of less restrictive alternatives generally. *See* AREEDA, *supra* note 154, ¶¶ 1505, 1511. *See generally* Eastman Kodak Co. v. Image Technical Services, Inc., 504 U.S. 451, 483-86 (1992); NCAA v. Board of Regents of the Univ. of Okla., 468 U.S. 85, 103, 113-20 (1984).

201. Following the approach outlined in recent enforcement agency guidelines, the comparison would be qualitative and approximate; additionally, as the probable anticompetitive effects became more severe, a greater level of expected efficiencies would be necessary to justify the restraint. *See* U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY § 4.2 (1995), *available in* <http://www.usdoj.gov/atr/public/guidelines/ipguide.htm>; U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST GUIDELINES FOR COLLABORATIONS AMONG COMPETITORS § 3.37 (2000), *available in* <http://www.ftc.gov/os/2000/04/ftcdojguidelines.pdf>. However, before courts we suggest a simpler rule: significant efficiencies would be recognized as defense unless clearly and convincingly outweighed by anticompetitive effects.

202. In its treatment of dynamic efficiencies, our proposed efficiencies defense might be viewed as relevant to whether price is below cost. Under this approach, presence of dynamic efficiencies would arguably show that price is not below long-run opportunity costs—properly defined. However, we treat dynamic efficiencies as an efficiencies defense because we think the burden should be on the defendant to establish such efficiencies, not on the plaintiff as part of its prima facie case. We are indebted to Steven C. Salop for raising this point.

203. *See supra* text accompanying note 201.

204. Promotional economies as an efficiencies defense have been criticized because a dominant firm typically has little need to promote its product by pricing below cost. *See* AREEDA & HOVENKAMP, *supra* note 35, ¶ 746. However, we see no reason not to recognize the defense where it is justified and no less restrictive alternative exists, even if such cases are rare. However, the less restrictive alternative condition becomes critically important in such cases to prevent misuse of this defense.

try a new product. The firm's expectation is that a favorable consumption experience induced by prices below cost will increase future consumer demand at prices above cost. This might be the case if consumers make frequent repeat purchases or communicate their views of product quality to other consumers by word-of-mouth.[205] The promotional pricing defense is best understood through a hypothetical case.

i. Illustrative Example: Tasty-Frozen Pizzas. Tasty-Frozen, a leading manufacturer of frozen pizzas, develops a new kind of cheese that retains its flavor and texture much better than that of other frozen pizzas. The new ingredient is much more expensive than existing cheeses, but test market research shows that consumers prefer the enhanced pizza and would be willing to pay for it. However, test market research also indicates that consumers, distrustful of "new and improved" product claims, are unwilling to try the new pizza if they must pay a higher price. To convince consumers that the new pizza tastes better, Tasty-Frozen considers in-store sampling. This, however, is a costly and likely ineffective marketing device because in-store congestion limits ability to reach consumers. Instead, Tasty-Frozen introduces its new product at the price charged for other frozen pizzas, supported by an intensive three-month advertising campaign. As a result, the price of the new pizza falls below Tasty-Frozen's short-run costs—either AIC or AVC.

At the end of the three months of promotion, Tasty-Frozen raises its price. Consumers remain loyal, having come to appreciate the new pizza's improved taste. While the manufacturer sustained large losses during the three-month promotional period, after that time, the firm earns substantial profits from both its higher prices and economies of scale. Projected sales indicate that Tasty-Frozen will become profitable within a year. Moreover, the company has no incentive to later degrade the quality of its product—for example, by mixing the new cheese with less expensive standard cheese—because consumers would note the change and no longer be willing to pay a premium. The higher quality of the new pizza has caused many customers to switch from more inexpensive brands, and the switch persists even after Tasty-Frozen raises prices. Indeed, so successful is the new pizza that several of Tasty-Frozen's low-price rivals suffer losses and leave the market.

Assuming Tasty-Frozen dominates the frozen pizza market, brand recognition creates entry and reentry barriers, and pricing is below-cost, a predatory strategy is plausible. That strategy could include financial market predation, rivals are excluded, and following the price-cutting, a rise in the price of Tasty-Frozen pizza, enabling Tasty-Frozen to recoup its investment in below-cost sales. In the absence of an efficiencies defense, Tasty-Frozen's pricing conduct appears to

205. Obviously, the firm must have reason to believe the product would achieve sufficient consumer acceptance to enable it to recoup its losses either by raising price or through scale economies. A necessary condition for this to occur is that consumers would reasonably expect that current product quality indicates continued high quality in the future.

raise antitrust problems. However, the above facts would satisfy each of the elements necessary to sustain an efficiencies defense.

ii. Proof of Efficiencies Defense

(a) Plausible Efficiencies Gain. The below-cost pricing has caused consumers to try the new product and could reasonably have been expected to have this effect. Introduction of the new pizza has improved both product quality and variety, as shown by consumer willingness to pay higher prices after the promotion period and the fact that cheaper brands of pizza continue to be offered. Thus, successful launching of the new pizza plausibly increases efficiency.

(b) No Less Restrictive Alternative. Success of the new pizza depends on informing consumers of its superior qualities. Sales below cost have induced consumers to try the new product and persuaded them that its improved taste justifies a higher price. Other means to induce consumers to experience the product—such as in-store sampling—are costly and ineffective. The planned three-month period of below-cost promotional pricing is no longer than appears reasonably necessary to inform consumers about product attributes. Therefore, no less restrictive alternative appears reasonably available to successfully launch the new product.

(c) Efficiency-Enhancing Recoupment. Tasty-Frozen raised its price after three months and became profitable after only a year, thereby recouping—at least in part—its investment in below-cost pricing. Tasty-Frozen's profits stem from the improved quality of its pizza and not elimination or disciplining of rivals, because competition from existing, lower-cost frozen pizzas remains vigorous.[206] Moreover, the manufacturer has a continuing incentive to maintain product quality because quality alone enables it to charge a premium price in the face of continuing competition from lower-priced frozen pizzas. Thus, recoupment stems from the efficiency-enhancing improvement in the quality of Tasty-Frozen's pizza.

b. Learning-by-Doing. The learning curve is an empirical relation showing that unit costs decline with cumulative production experience. The learning curve reflects the idea that learning-by-doing can be an important source of process innovation. In the presence of a learning curve, a profit-maximizing firm might reduce its price below its current cost to increase its production volume without having any predatory purpose. By these means, the firm may accelerate its discovery of cost-reducing production methods, recouping its investment in below-cost pricing from increased profit available at a

206. Even if consumers eventually switch to the new product in such numbers as to exclude ower-cost brands, such an informed choice by consumers would improve welfare.

later time.[207]

While learning-by-doing induced by below-cost sales may achieve efficiencies gains through earlier discovery of cost-reducing production methods, it may also have exclusionary effects that, at the limit, could create a dominant or monopoly firm. Thus, absence of a less restrictive alternative becomes a key factor in assessing availability of a learning-curve efficiencies defense. This requires proof that other means of achieving learning-curve economies—mentoring by other workers, classroom training, process research and development, or producing to inventory—are more costly. In addition, the period of below-cost pricing must be no longer than reasonably necessary to achieve the learning-curve economies.

Finally, to prove efficiency-enhancing recoupment, the firm must show that accelerated production enabled it to achieve important cost savings, and that its rivals, producing at lower volume, did not achieve similar cost savings during the same time period. Proof of such facts would tend to establish that below-cost pricing was necessary to induce the savings in production cost.[208]

c. Network Externalities. A network externality occurs when a consumer's valuation of a product increases with the number of other consumers using the product. An example is a telephone network, where the value of the network to a user increases with the number of connected telephone users. The procompetitive rationale for below-cost pricing in cases involving network externalities bears similarities to those for both promotional pricing and learning-by-doing. The rationale is similar to that for promotional pricing because future demand increases with added current sales, and is similar to that for learning-by-doing because demand depends on cumulative sales.

When network externalities are present, a profit-maximizing firm might initially price a product below cost in order to establish a large, installed base of users, and thereby increase demand for its product. Far from injuring competition, such conduct may be procompetitive and welfare-enhancing. Such a procompetitive effect might occur, for example, if: (1) the firm had reason to expect that an installed base would significantly increase the demand for its product; (2) a large installed base would increase availability of complementary products and services, augmenting the value of the basic product; (3) as a result, consumers would value the product more highly, enabling the firm to recoup its investment in below-cost pricing; and (4) the period of below-cost pricing

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207. Learning-curve efficiencies could be considered within the cost element of the liability case as a future benefit that augments an otherwise below-cost price. We include it as an efficiencies defense because the complexity of its determination prevents it from being a feasible screen for prima facie liability and because, as in the case of the dynamic efficiencies, the burden of proof should be on the defendant, who controls the evidence necessary for successful proof.

208. Ideally, to determine whether the price cutting enhanced efficiency, we would ask whether the pricing would have been profitable in the absence of rival exclusion; however, there appears no feasible means for courts to make that determination in a learning-curve context. *See generally* Cabral & Riordan, *supra* note 5.

extends no longer than reasonably necessary to achieve the installed-base network economies. As in the case of learning-curve economies, the presence of a less restrictive alternative is likely to be a key issue.

An example of network externalities would be a new battery for electric cars that requires a network of service stations with specialized equipment and service personnel. Assume a new technology is developed by two firms such that each requires its own specially equipped servicing network, as well as specially designed auto engines. Firm *A* develops its battery a few months earlier than Firm *B* and obtains initial contracts with auto manufacturers developing a pioneer electric car to test market in a few cities. Firm *A* also induces a small number of service stations to buy the necessary equipment and train personnel. When Firm *B* enters the market, Firm *A* bids aggressively in each competitive encounter, often bidding below cost. As a result, Firm *A* obtains most of the initial contracts. Because far more cars now have *A*-type batteries, few service stations are willing to invest in the specialized equipment and training costs for Firm *B*'s batteries. As a result, the market for Firm *B*'s batteries dries up and Firm *B* leaves the market. Thereafter, Firm *A* raises prices steeply.

This example involves a network efficiency because a large installed base for a particular battery makes servicing available and convenient for consumers. A less restrictive alternative would, of course, have been for Firm *A* to price above cost. In that event, consumers would have had a choice between two battery types and probably lower prices. In retrospect, that alternative appears clearly viable in view of the rapid growth of the electric car market. On the other hand, at the time of the below-cost pricing, the potential size of the market was unknown, and Firm *A* might reasonably have anticipated that the market would support only one type of battery. If that were the case, below-cost pricing might have been justified as the quickest path to a viable battery network.

Firm *A* recouped its investment in below-cost pricing, but the recoupment may or may not have been efficiency-enhancing. If a single, quickly developed battery network was essential to the success of the electric car, recoupment was efficiency-enhancing. However, if above-cost pricing would have led to marketing success for two batteries, the huge recoupment Firm *A* obtained would be predatory, not efficiency-enhancing. Because counter-factual determinations are always difficult to make, convincing proof should be required to sustain the predatory finding where, as here, market-expanding efficiencies are plausibly achieved.

C. LEGAL FEASIBILITY

Rules based on modern strategic theories of predation can be challenged as unmanageable in the courtroom, likely to undermine effective business planning, and apt to lead to the chilling of desirable price competition.[209] Respond-

209. *Cf.* AREEDA & HOVENKAMP, *supra* note 35, ¶ 736 (rejecting early strategic theories, such as

ing to these legitimate concerns, our proposed approach is designed to minimize such risks.

To begin with, the proposed rule contains a series of objective screening tests that would remove most transactions from judicial scrutiny. First, following existing law, the predatory price would have to be below some measure of cost, and in most instances that will mean below short-run costs.[210] Therefore, pricing above cost provides a safe harbor, whatever the firm's pricing strategy. This safe harbor provides effective guidance because, presumably, a business firm knows its own costs well enough to know whether it is pricing in the "danger zone." Second, also following existing law, the proposed rule contains three essential preconditions that allow dismissal of a case by summary motion without even reaching the proof-of-cost stage: (1) a market power screen, which under the post-*Brooke* decisions has been the most frequent grounds on which courts have dismissed predatory pricing suits without trial;[211] (2) proof of a plausible scheme of predation, which would require a showing that an economically accepted predatory theory is plausible under the specific facts of the case; and (3) proof of probable recoupment, which would require a showing that the alleged predation caused prices to rise to a supracompetive level or created market conditions making such an effect likely. Together, the three preconditions provide a rigorous filter (or first tier analysis), and the absence of any one of them leads to immediate rejection of the predatory allegations. Third, even when a prima facie case of predation is established, the proposal allows a comprehensive efficiencies defense, and in most cases would sustain the defense when the defendant has shown substantial efficiencies and absence of a practical and significantly less restrictive alternative. Further, the proposal attempts to simplify application of the efficiencies defense by categorizing the various types of efficiencies and proposing an ordered way to examine them. We note that information about efficiencies is in the defendant's hands, and thus the defendant should be able to ascertain the facts. Fourth, the feasibility of our approach is demonstrated through several case examples that apply the proposed criteria to each of the main theories developed in this analysis.

This Article has been highly selective in identifying the predatory theories for which it claims strong plausibility and proposes a less exacting recoupment standard in light of the strength of the predatory theory. We have included only theories supported by a tightly specified equilibrium analysis—an exhaustive

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those articulated by William Baumol, *see* Baumol, *Predation*, *supra* note 72, and Oliver Williamson, *see* Williamson, *supra* note 71, as unsuitable for courtroom use). We should point out that we do not rely on these theories, which predate modern economic analysis of predatory pricing. The modern analysis is stronger because it is based on rigorous equilibrium models. We agree with the Areeda and Hovenkamp treatise on the importance of administrative feasibility, and discuss the feasibility of our approach in this section.

210. A presumption of illegality applies only when price is below short-run costs, making other cases far more difficult to prove. *See Brooke*, 509 U.S. at 222-23; CIRCUIT-BY-CIRCUIT, *supra* note 84, ch. III.

211. *See supra* text accompanying notes 146-50.

and rigorous analysis that works out all moves and countermoves to the specified strategy.[212] Even then, we have applied the theories cautiously, insisting, for example, that reputation effect predation be viewed as strongly plausible only if it augments or intensifies another highly plausible predatory program pursued by the predator—such as financial market predation.[213]

The concern that juries cannot adequately handle predatory pricing cases issues is ameliorated by the expanding role of judges and, more recently, enforcement agencies. Jury competence is a real concern—although it must be noted that the problem already exists under current approaches because jurors must determine the complex issues of costs, market power, and probable recoupment. The fact is, however, that the role of the jury in predatory pricing cases has been bypassed in several ways. In actions by the United States or the Federal Trade Commission, juries are not involved at all because the suits are either for injunctions in the federal courts or are actions before the Federal Trade Commission, both of which involve only judges. To be sure, most predatory pricing cases are damage actions and are likely to involve juries. However, even in those cases, the jury role has been confined by the strong supervisory controls exercised by federal judges, including frequent summary disposition.[214] As the statistics on predatory pricing cases demonstrate, almost all cases since *Brooke* have been disposed of by summary motion or post-verdict reversal.[215] While this aggressive judicial role stems in part from the restrictive interpretation of predatory pricing in *Brooke*, such judicial dispositions were frequent before *Brooke*.[216] Therefore, firm judicial control of juries also reduces the risk of overdeterrence and disruptive uncertainty.[217]

Moreover, the antitrust agencies, which have recently focused renewed attention on predatory pricing, have a powerful tool by which they can provide guidance for business and courts—enforcement agency guidelines. In the Merger Guidelines, Health Care Guidelines, Intellectual Property Guidelines, and most recently in the Antitrust Guidelines for Collaborations Among Competitors, the enforcement agencies have set forth detailed criteria by which firms—and potentially courts—can assess the antitrust risk of planned transactions.[218]

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212. Therefore, we do not include the theories critiqued by Areeda and Hovenkamp as unsuitable for legal application. *See supra* text accompanying note 209.

213. Under *Brooke*, a plaintiff may bring a predatory pricing case under other possibly plausible predatory theories; however, until economists have rigorously proven such theories, we would require a strong showing of actual, not merely probable, anticompetitive effects.

214. *See supra* text accompanying notes 95-96, 118-24.

215. The courts have typically ruled that under the facts of the case, no reasonable juror could find the defendant liable—a determination the judge is free to make either before or after trial. *See, e.g.*, *Brooke*, 509 U.S. at 219.

216. *See supra* text accompanying notes 95-96.

217. *Brooke* itself provides an example. The trial court reversed a large damage award by the jury and ordered dismissal of the case, and it was this action that the Supreme Court upheld. *See Brooke*, 509 U.S. at 218-19.

218. *See* ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY, *supra* note 201, § 4.2; ANTITRUST GUIDELINES FOR COLLABORATIONS AMONG COMPETITORS, *supra* note 201, § 3.37;

These guidelines go a long way toward providing the reasonable certainty needed by businesses to plan effectively. Of course, if guidelines are too sweeping, they can deter desirable transactions. But the moderate tone and flexibility of recent guidelines minimize such risks. It is not inconceivable that at some future stage, enforcement agency guidelines for predatory pricing may become appropriate, and would further reduce risks of overenforcement and uncertainty.

Finally, legal feasibility must also relate to the social benefits of proposed policy. Construed narrowly, the most feasible antitrust rule is one of per se legality. But most would consider such a rule excessive—legal feasibility must also be judged in relation to the policy need. The proliferation of new categories of business transactions, the growing importance of intellectual property, and the recognition of heretofore ignored economic effects—such as network externalities—calls for more subtlety in analysis than has been present in earlier approaches to predatory pricing. For example, a cost-based rule that required price to be below short-run costs in all cases would effectively exempt computer software from predatory pricing constraints. Modern strategic theories are sensitive to these developing complexities and, in that sense, are more responsive to current policy needs than are earlier theories. Consistent with the challenge of growing economic complexity, the Supreme Court's recent decision in *California Dental Ass'n v. FTC*[219] expressed the need for particularized—and necessarily more complex—analysis under the rule of reason, freed from tightly specified categories of per se or strongly presumptive rules.[220]

Therefore, the proposed rule can be effectively administered by courts and antitrust agencies, provides reasonable guidance for business planning, is unlikely to deter desirable low-cost pricing, and responds to contemporary policy needs.

IV. FINANCIAL MARKET PREDATION

A. ECONOMIC THEORY

Financial market predation is not to be confused with traditional deep-pocket predation. The deep pocket theory in its original form held that a richly endowed predator would charge low prices to drive out a poorly endowed rival.[221] This simple form of the theory is no longer accepted—except in certain

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Statement of Antitrust Enforcement Policy in Health Care, 4 TRADE REG. REP. (CCH) ¶ 13,153 (Aug. 28, 1996). *See generally* Interview with Professor Joseph F. Brodley on the Federal Trade Commission and U.S. Department of Justice Draft Antitrust Guidelines for Collaboration Among Competitors, *available in* 14 ANTITRUST 6 (Fall 1999).

219. 526 U.S. 756 (1999).

220. *See id.* at 776-82.

221. *See generally* Milgrom & Roberts, *supra* note 50, at 118-23 (discussing theoretical underpinnings of predation based on having larger war chest).

regulatory applications[222]—because it ignores the possibility that profit-seeking investors would finance the prey. Thus, in the general case, we must assume that capital markets are open to a profitable prey, and realize that external financing could foil predation.

Accordingly, modern strategic theory focuses on the relation between the prey and its investors.[223] A predatory strategy becomes viable because of capital market imperfections. In supplying capital, investors face agency or moral hazard problems: the managers of the firm may take excessive risks, shield assets from creditors, dilute outside equity, fail to exert sufficient effort, or otherwise fail to protect investors' interests. Investors respond to these problems by fashioning financial arrangements contingent on performance. The predator seeks to undermine this relationship between the prey and its investors by causing termination of investor financing due to perceived poor performance resulting from low prices and diminished cash flow; and thereby to drive the prey from the market or deter its expansion into new markets.

Suppliers of capital can mitigate these agency problems by extending financing in staged commitments, thereby imposing an explicit or implicit threat of termination in case of poor performance.[224] If the investors are debtholders, they may threaten to liquidate the firm or deny new credit in the event of default. If they are venture capitalists, they may refuse to extend additional financing if early performance is poor. And, if they are shareholders, they may decline to purchase additional equity if expected returns are low due to disappointing initial performance. Predatory pricing in product markets thus becomes possible when a predator exploits these termination threats to dry up the financing of a rival firm.

Admittedly, termination threats are blunt instruments, and investors, in principle, could shield themselves more effectively by making the financing contract dependent on the firm's realized profits in a more discerning way. Generally, however, more sophisticated contractual agreements that attempt to discriminate between different causes of poor financial performance fail because the firm's accounting profit is manipulable and therefore not reliable. The true economic

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222. *See* W. KIP VISCUSI & JOHN E. HARRINGTON, JR., ECONOMICS OF REGULATION AND ANTITRUST 532-33 (2d ed. 1995) (cross-subsidization of below-cost pricing in one market by setting regulated price in second market above socially efficient level).

223. *See, e.g.*, Patrick Bolton & David Scharfstein, *A Theory of Predation Based on Agency Problems in Financial Contracting*, 80 AM. ECON. REV. 93 (1990); Drew Fudenberg & Jean Tirole, *A "Signal Jamming" Theory of Predation*, 17 RAND. J. ECON. 366 (1986).

224. Agency problems limit the ability of outside investors to appropriate the returns from a project and thus may prevent the financing of otherwise efficient firms. Implicit or explicit termination threats mitigate agency problems by making continued financing dependent on repayment obligations or collateral. If the firm fails to meet repayment obligations, then creditors have the right to liquidate the firm. Such liquidation potentially destroys a profit stream to which the firm would otherwise lay claim. Less drastically, the liquidation threat may enable the lender to claim a greater share of these continuing profits through renegotiation of the terms of the loan. In either case, the firm's incentive to retain a claim on a continuing stream of profits provides an incentive to the manager to make efficient decisions and to meet repayment obligations. *See* Bolton & Scharfstein, *supra* note 223, at 99-100.

profit of the firm is not perfectly observable by an outsider, and even if it were, it could not be verified by a court sufficiently to be used as a condition in a financing contract.

Agency problems are particularly acute in the financing of new enterprises. Typically, there is great uncertainty about cash flow in the beginning stages of a new enterprise. Investment in a new or expanding firm may encounter initial losses or lower-than-expected profit. These losses may be unavoidable start-up costs—never fully foreseeable—or may be due to agency abuse. Lenders can mitigate moral hazard problems by requiring collateral and by agreeing to extend financing—in staged commitments—only when the firm's initial performance is adequate. In many instances, lenders commit explicitly to further financing, contingent on verifiable performance—as in venture capital contracts; more commonly, however, the agreement to extend additional financing is implicit.[225] When the promise of new financing is implicit, the firm can only obtain new funding if the new investment is perceived to be sufficiently profitable by the lender and if the lender has adequate protection against agency abuse. Therefore, to obtain additional financing in a later period, the borrower must be able to offer a significant fraction of its own capital as collateral, as well as meet its existing financial obligations.

Financial contracts that guard against agency abuse may invite predation. A predator may slash price to drain the prey of sufficient funds to meet its loan commitments, thereby forcing default. Less drastically, the predator may be able to lower the prey's earnings, and thus impair the prey's debt capacity, by limiting the amount of collateral it can offer. In addition, reduced earnings exacerbate future agency problems by forcing the prey to pledge a bigger share of future profits to its outside investors and creditors. As a result, the firm's manager has less incentive to maximize profits. Finally, lower earnings may cause lenders to believe wrongly that the firm's profits are likely to be lower or riskier in the future and therefore to stiffen their lending terms.

It might at first appear that a lender could easily counter predation by agreeing to finance the prey irrespective of its ability to meet scheduled loan repayments; the predator, anticipating the lender's counterstrategy, would realize that financial predation could not succeed. However, a lender will not ordinarily make such a commitment, because to contribute funds to a debtor in default provides no restraint on agency misconduct.[226]

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225. *See* Jeremy Bulow & Kenneth Rogoff, *A Constant Recontracting Model of Sovereign Debt*, 97 J. POL. ECON. 155, 155-78 (1989); Douglas W. Diamond, *Reputation Acquisition in Debt Markets*, 97 J. POL. ECON. 828, 829-62 (1989); Oliver Hart & John Moore, *A Theory of Debt Based on the Inalienability of Human Capital*, 109 Q. J. ECON. 841, 841-79 (1994); Jonathan Thomas & Tim Worrall, *Foreign Direct Investment and the Risk of Expropriation*, 61 REV. ECON. STUD. 81, 81-108 (1994).

226. In an attempt to forestall predation, lenders may write financial contracts that are less sensitive to performance, as is shown by Patrick Bolton and David Scharfstein, but they will not choose to make the contract independent of performance even if renegotiation of the loan contract is permitted. *See* Bolton & Scharfstein, *supra* note 223, at 102; *see also* Christopher Snyder, *Negotiation and Renegotiation of Optimal Financial Contracts Under the Threat of Predation*, 44 J. INDUS. ECON. 325 (1996).

Nor can lenders necessarily solve the financing problem by excusing default when caused by predatory pricing. The lender may be unable to determine whether the default stems from predatory pricing or from the debtor's poor performance because the lender lacks both full information and, typically, the expertise available to a market insider. Even if the lender could so determine, the courts can verify that determination only through a costly and inherently uncertain legal proceeding that few lenders would wish to confront.[227] Moreover, even if the lender were willing to face the legal uncertainties, the manager's actions are not fully observable to the lender so that in sustaining a predatory victim, the lender is unable to determine whether the firm would have failed even in the absence of predation.[228] Therefore, the lending agreement cannot feasibly include a commitment based on the future occurrence of predatory pricing. In the absence of such a commitment, the lender may not want to extend lending in the event of predation.[229]

All this places the lender in a dilemma. If the lender provides a continuing supply of funds sufficient to deter predation, it invites agency misconduct. On the other hand, if the lender attempts to impose financial discipline on the firm with repayment obligations and collateral requirements, it may induce predation. There is no fully satisfactory solution to the dilemma. Indeed, the lending contract that minimizes agency problems will maximize the incentive to prey.[230] Since lenders can scarcely afford to ignore agency problems in writing financial contracts, predation potentially remains a viable strategy. The inability of creditors to write optimal financing contracts in the presence of predation raises the costs of debt and lowers the return on new enterprise, thereby inhibiting the development of new competition and possibly reducing economic welfare. In a very real sense, capital markets have failed in that these adverse effects follow even when it is common knowledge that new entry by an efficient firm would be profitable in the absence of predation.

Perhaps the most insistent critique of a predatory pricing strategy is that, even

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227. The lender's right to funding would depend on the court's determination: (1) that predation occurred (a complex and difficult issue to prove); and (2) that the debtor's predatory losses caused the default, as distinct from other factors. *See* Bolton & Scharfstein, *supra* note 223, at 101. Compounding this problem, the lender itself might undercut its undertaking to continue financing if default was caused by predation. Ex ante, the lender has an incentive to agree to provide follow-on financing even if it is not profitable ex post. The reason is that commitment provides incentives for manager effort. But, once the effort is put forth, the lender would like to renege if possible. Thus, if a predation contingency were written into the contract, the lender would have an incentive to deny that predation had occurred, burdening the debtor with proving an antitrust case to enforce its loan agreement.

228. This explains why staged financing contracts typically condition further financing on meeting scheduled loan repayments. *See supra* text accompanying notes 224-25.

229. Moreover, there is the continuing risk that market conditions may have changed, making lending less attractive—for example, a rise in the opportunity cost of credit—or lenders may have formed a more conservative estimate of revenue streams. Such developments, together with continuing agency problems, means that new credit may not be forthcoming to finance a profitable project.

230. To the contrary, the loan contract that minimizes predatory risk would maximize agency problems. Therefore, the lender can at best compromise between the two goals.

if the prey is forced to exit the market, the predator has accomplished nothing because the prey's assets remain in the market. Indeed, if the prey's assets are sold at a low price, then the successor may have a lower debt burden and therefore greater access to capital markets and a lower cost of capital than the defeated prey. Thus, it is argued, the predator now faces a stronger and better-financed rival than before, making recoupment unlikely. This critique is flawed for reasons discussed in some detail in Part VII below. Foremost among its flaws are the likelihood that the acquired assets may be insufficient for the successor to achieve a viable scale, and that attempts by the successor to gain additional financing may be plagued by concerns about continuing agency problems and further predation.

A related critique is that acquisition of the prey by a well-endowed creditor would preclude financial market predation. However, creditor acquisition of the prey is generally not feasible because agency costs and measurement ambiguity frequently prevent the creditor from ascertaining the true profit of the prey and from determining whether, in the absence of predation, the prey is profitable. Even if the creditor can observe the prey's profitability, it typically lacks the specialized expertise to manage the prey. If the creditor attempts to gain the needed expertise, it may not succeed—and at the very least faces a time lag, during which it will sustain additional losses. Critics might argue that the creditor is in no worse a position than the predator, but this objection neglects the fact that the predator is an insider, while the creditor is a market outsider. Therefore, the possibility of creditor acquisition of the prey will not always bar financial predation.[231]

A final possible avenue to further financing is bankruptcy reorganization, which involves compromise and subordination of loans to give the bankrupt debtor a chance to work itself out of insolvency under judicial supervision. But, the inability to make additional financing arrangements dependent on profit confronts new creditors with the same contracting limitations that stymied the original creditors.[232] In addition, new creditors cannot rely on the bankruptcy

231. Nor does venture capital financing provide an effective answer to financial predation. Venture capital loan agreements often give creditors managerial participation rights and board of directors representation, particularly in the event of default. *See* William A. Sahlman, *The Structure and Governance of Venture-Capital Organizations*, 27 J. FIN. & ECON. 473, 506 (1990); *see also* JOSEPH W. BARTLETT, VENTURE CAPITAL: LAW, BUSINESS STRATEGIES, AND INVESTMENTS (1994). But it does not follow that the venture capital fund will be willing to provide substantial additional funding to shore up a predatory victim. Fund investors typically contribute capital in staged increments, limit the fund's investment in any single enterprise, and insist on broad diversification to reduce the high risks of new enterprise investment. *See* Paul A. Gompers, *Optimal Investment, Monitoring, and the Staging of Venture Capital*, 50 J. FIN. 1461, 1461-62 (1995); Sahlman, *supra*, at 503-06. These limitations inhibit the fund manager from attempting to defeat a predatory strategy by buttressing the prey with additional funds when its performance is poor. That is to say, there is an agency problem in the management of the venture capital firm itself that constrains the firm from adopting a predatory counterstrategy by pouring additional money into a losing investment.

232. One might speculate that an additional source of liquid capital is the prey itself, which conceivably could accumulate funds through agency misconduct during the previous financing period.

court to effectively constrain agency misconduct by the bankrupt debtor. Bankruptcy reorganization procedures do little to protect against debtor or management misconduct for several reasons: there is no trustee and no SEC supervision; the old management often remains in control both during and after reorganization under the broad permissiveness of the business judgment rule; the reorganization plan is almost always that of the debtor.[233] The court does not supervise the reorganized firm, but instead acts essentially as an arbiter between conflicting interests.[234]

B. PROOF OF FINANCIAL PREDATION STRATEGY

Proof of a plausible strategy of financial market predation would require a showing of five essential preconditions or enforcement screens. Fulfilment of these preconditions would establish that financial predation is a viable predatory strategy. Of course, proof that financial predation could be a viable strategy ex ante does not establish an antitrust violation. Proof of violation would also require evidence of effects and market conditions making recoupment probable in light of that strategy. The preconditions are as follows:

(1) *The prey depends on external financing.*

Dependence on outside funding creates agency problems and contractual responses that expose the prey to predation. Such dependency is the typical condition of the new or expanding firm, as is vividly illustrated in venture capital financing.

(2) *The prey's external financing depends on its initial performance.*

This relationship is an essential condition because, if the prey's financing does not depend on initial performance, then the financial relationship between the prey and its investors and creditors would be insensitive to a strategy of price predation. Cash flow is the most obvious performance indicator on which outside investors are likely to focus. Lending contracts requiring repayment or

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More specifically, the prey may default on its loan, become insolvent or bankrupt, and then use funds siphoned off before default to generate its own internal financing or to attract new external financing and thereby foil predatory pricing. This scenario appears unlikely, however, since the original financing contract is designed to avoid such managerial behavior. As we have seen, the lending contract can be written to supply funds in relatively small increments, with each increment payable only after the debtor has paid the previous loan installment. *See supra* text accompanying note 224. Therefore, recourse to entirely new financing would be necessary to sustain the prey, and a new creditor is unlikely to consider financing a borrower with such a credit history.

233. *See* 7 COLLIER ON BANKRUPTCY ¶ 1100.01 (Lawrence P. King ed., 15th rev. ed. 1996). Notwithstanding reorganization, the debtor has broad discretion in the ordinary course of operation of the business and is constrained generally only by the business judgment rule. *See* DAVID G. EPSTEIN ET AL., BANKRUPTCY § 10-6 (1993).

234. *See* Walter W. Miller, Jr., *Bankruptcy's New Value Exception: No Longer a Necessity*, 77 B.U. L. REV. 975, 1005-07 (1997). We are indebted to Walter Miller for his advice on bankruptcy reorganization.

increased capital contributions over staged intervals are a common form of financing that exhibits the requisite dependence on cash flow. Similarly, new investors would be discouraged by lower than expected cash flow. In some cases, external financing may depend on other performance indicators beside cash flow, such as revenues or initial market penetration.

(3) *Predation reduces the prey's initial performance sufficiently to threaten the prey's continued financing and viability.*

Predatory risk must be of sufficient magnitude and probability to affect the supply of further financing, thereby threatening the prey's financial viability. These conditions would be present in many cases and might be demonstrated by the prey's business plan.

(4) *The predator understands the prey's dependence on external financing.*

Although the point is perhaps an obvious one, the predator must have actual or imputable knowledge that the prey's viability depends on outside funding. This knowledge will be based on easily accessible facts or rational conjecture. Sometimes this may be common knowledge, as in airline markets, where a firm without internally generated funds would require substantial outside funding to establish a large, geographically dispersed revenue base to shield it against predatory tactics.[235] Alternatively, funding dependency may be disclosed in public SEC filings or discoverable through simple investigation. In other cases, knowledge may be inferred from the predator's conduct or its internal documents.

(5) *The predator can finance predation internally or has substantially better access to external credit than the prey.*

This is a necessary assumption because unless the predator has superior access to credit or internal funding, it would face agency risks and resultant financing constraints similar to those that confront the prey.[236] Indeed, the predator might face greater difficulties in obtaining outside funding if predation proved more costly for the predator than for the prey. As in the case of the prey, agency and verification problems would impede financing notwithstanding the ultimate profitability of the predator's conduct. It is reasonable to assume, however, that the predator, typically a monopoly, dominant firm, or dominant group of firms, will be less highly leveraged than the prey—and thus will raise

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235. *See* Anthony Saunders et al., *The Economic Implications of International Secured Transactions Law Reform: A Case Study*, 20 U. PA. J. INT'L ECON. L. 309, 312 (1999) (commercial airline industry heavily dependent on external financing); *cf.* Michael E. Levine, *Airline Competition in Deregulated Markets: Theory, Firm Strategy, and Public Policy*, 4 YALE J. ON REG. 393, 436 (1987).

236. *Cf.* Judith A. Chevalier, *Capital Structure and Product-Market Competition: Empirical Evidence from the Supermarket Industry*, 85 AM. ECON. REV. 415, 433-34 (1995) (highly leveraged supermarket chains priced nonaggressively).

less agency risk for the creditor. As a result, the predator faces little danger of credit cutoff or reduction of supply, while the prey will be more inhibited by the prospect of a price war.[237]

C. ILLUSTRATION: CABLE TELEVISION

A recent case study and related facts[238] involving entry into the cable TV market in Sacramento, California, provides a vivid context in which to illustrate application of the strategic approach to financial predation. Our discussion of this case illuminates our proposed method, but does not attempt to assess the ultimate merits of the case.

1. Factual Summary

The monopoly cable system operator in Sacramento drastically cut prices in response to successive entry attempts by two small rivals—both of whom subsequently left the cable market—after which no further entry occurred. The second attempt was much better financed and persisted longer, and our discussion will be confined to this more substantial effort. The entrant began with outside financing of six million dollars,[239] which enabled it to overbuild a compact area (the Arden district), serving five thousand homes in Sacramento. This was the first step in a larger plan to gradually build out in order to challenge the incumbent in a market that served four hundred thousand homes. The entrant sank its initial investment, completed its underground conduits and cables, and began to recruit customers.

The incumbent responded with drastic price cutting—as well as other predatory tactics. At least partly as a result of the price-cutting, the entrant was able to sign up only a handful of customers, and abruptly halted its effort to connect additional customers after only eight months. For a time, the entrant continued to serve the small core of customers it had succeeded in connecting, but eventually shut down its wired cable system, abandoning a non-recoverable investment approaching five million dollars. The entrant filed suit claiming

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237. An additional condition might be added for widely held firms requiring that the managers' interests in pursuing a predatory price war be aligned with the long-term interests of shareholders. Short of that, the objection could be made that subordinate managers might be unwilling to carry out a top management or controlling shareholder's decision to predate. *See* LOTT, *supra* note 41, at 36. But such a failure of internal controls within the firm is unlikely in view of the many ways superior managers or concentrated control groups may reward or punish subordinate managers. Moreover, the presence of objective facts showing a scheme of financial predation and supporting evidence, exclusion of rivals, probable recoupment, and below-cost pricing should convincingly refute any claim that agency problems prevented predation. Hence, proof of such an internal agency problem should be left to affirmative proof by the alleged predator in the rare case where it might arise. *See infra* text accompanying notes 391-93 for a more detailed discussion.

238. *See* Thomas W. Hazlett, *Predation in Local Cable TV Markets*, 40 ANTITRUST BULL. 609 (1995).

239. *See* Telephone Interview with Robert M. Bramson, Attorney (Farrow, Bramson, Baskin & Plutznik, LLP) representing Entrant (Aug. 19, 1997).

predatory pricing,[240] and the case was settled during trial for twelve million dollars.[241] After its wired cable business became dormant, the entrant successfully entered the Sacramento market by building a microwave transmitter, but its exclusion from the cable market had a significant impact on competition, as discussed below. The suggested elements of proof will now be applied to these facts.

2. Proof of Case

a. Market Structure Facilitating Predation. The incumbent held a monopoly on cable system service in Sacramento. It was subject to competition from microwave, but microwave was inferior in quality and was severely limited in the number of channels it could offer to consumers.[242] The incumbent's monopoly power was probably also evident from the high return on investment relative to replacement cost for cable television firms.[243] Substantial entry barriers existed in the form of high sunk costs, as well as regulatory hurdles. The incumbent's ability to raise prices in the Arden sub-market after the entrant withdrew would indicate reentry barriers—at least following successful predation.

b. Scheme of Predation and Supporting Evidence. The facts of the case provide a vivid illustration of the relevance and explanatory power of modern strategic theory—in this case, financial predation. Proof of recoupment is established by a showing that recoupment is plausible under sound economic theory and by evidence of actual effects making recoupment probable in light of that theory. The evidence demonstrates that each of the five preconditions for financial predation was present.

(1) *The prey depends on external financing.*

The entrant began operations with six million dollars in capital. The firm obtained the funds through a loan, personally guaranteed by its owners, who

240. *See* Pacific W. Cable Co. v. Sacramento Cable Television, No. 88-985 (E.D. Cal. filed Aug. 4, 1988).

241. *See* Telephone Interview with Robert M. Bramson, Attorney (Farrow, Bramson, Baskin & Plutznik, LLP) representing Entrant (Feb. 5, 1999).

242. Wired cable would comprise a separate market for antitrust purposes capable of being monopolized if a monopolist in that market could raise prices significantly above the competitive level. The high return on investment in cable television systems—presumably also high in Sacramento—would tend to show market power, as would the fact that the incumbent raised prices in the Arden district after the entrant withdrew from cable. *See* Hazlett, *supra* note 238, at 623. While the case study does not discuss the issue, perhaps the entrant's subsequent entry into microwave constrained prices in the cable market, but this seems improbable. The entrant achieved limited market penetration through microwave—10%—as compared with projected cable penetration—35% penetration estimated for competitive entry. *See id.* Therefore, it appears likely that a substantial group of consumers with strong preference for cable remained to be exploited.

243. *See* Hazlett, *supra* note 238, at 611-12 (cable systems "notably monopolistic" with market value 2.5 to 6 times capital costs).

included two wealthy real estate developers. This financing sufficed to build an initial system serving five thousand homes. The costs of expanding to cover any significant part of the Sacramento market, of which this represented barely one percent, would be staggering and would require additional external financing. While the two principal investors were quite wealthy, they were essentially passive investors and were reluctant to risk additional funds in a business in which they had no prior experience. Instead, their business plan was to rely on bank financing to raise the capital necessary to overbuild the Sacramento market.[244]

(2) *The prey's external financing depends on its initial performance.*

In addition to their initial six million dollar contribution, the two principal investors had obtained a line of credit from a consortium of banks to build into other geographic areas. Credit was easy to obtain due to the wealth of the principals, but, as indicated, they were reluctant to risk their personal assets beyond their initial investments and loan guarantees. The investors' unwillingness to draw further on personal assets meant that expansion was dependent upon other sources of financing, the availability of which depended on the prey's initial performance. A positive cash flow from entrant's initial operations was potentially a source of internal financing and collateral for bank financing.

(3) *Predation reduces the prey's initial performance sufficiently to threaten the prey's continued financing and viability.*

The incumbent's actions limited the entrant's initial customer base to 170 homes, far below the twenty-five to thirty percent penetration needed to break even.[245] As a result of this "pitifully low penetration," the entrant's cost of capital was "climbing precipitously."[246] The incumbent's drastic price cutting convinced the principals that additional financing would require use of their personal credit. The investors did not attempt to draw on their line of credit, but instead abandoned efforts to extend the system, despite their sunk investment.[247] The entrant became a far riskier investment as a result of its low cash

244. *See* Interview with Bramson, *supra* note 239; *see also* Telephone Interview with Thomas W. Hazlett, expert economic witness for entrant (Aug. 18, 1997). In addition, one of the principal investors was a co-owner of an NBA basketball team—the Sacramento Kings—and also the Sacramento Sports Association, which the investors thought might give entrant an edge in obtaining sports programming. *See* Joseph Evans, *Cable Saga Now Includes Foes Going Head to Head,* BUS. J.-SACRAMENTO, Dec. 7, 1987, at § 1, 21.

245. *See* Hazlett, *supra* note 238, at 619.

246. Hazlett, *supra* note 238, at 620; *see also* Interview with Bramson, *supra* note 239.

247. *See* Interview with Bramson, *supra* note 239; Interview with Bramson, *supra* note 241; Interview with Hazlett, *supra* note 244. It is of course possible the investors had a change of heart about the project's viability, but this seems unlikely since their business plan from the beginning had been to obtain bank financing, without recourse to their personal assets.

flow and, in the judgment of its principal investors, could not obtain outside funding on the strength of its own credit and future potential.

Instead, the entrant simply maintained a holding operation, continuing to serve its handful of connected customers, and eventually shut down its underground cable operation.[248] Of course, other factors might explain the entrant's abandonment of the cable market, such as changes in expected profitability, the suitability of microwave as a vehicle for challenging an established cable TV system, or a general tightening of credit availability. The case study notes only the latter condition—tightening of credit—but makes clear that the incumbent's predatory campaign severely reduced the entrant's cash flow, and hence its continued financing and viability.[249]

(4) *The predator understands the prey's dependence on external financing.*

This element is easily satisfied since the facts demonstrated that the incumbent was attempting to raise the entrant's cost of capital to exclude the entrant as a rival and to deter further entry. The whole purpose of the incumbent's price cutting strategy was to raise the entrant's cost of capital and discourage future contributions from its investors.[250] Indeed, an internal memorandum from the incumbent's files assesses the entrant's financial resources, focusing on the net worth of its two principals and comparing this to the resources of a previous entrant who had also abandoned the market after severe price-cutting by incumbent.[251] More striking still, another memorandum from the incumbent's files discusses the sending of a message to entrant's bankers.[252]

Moreover, the incumbent knew that to overbuild a significant part of the Sacramento market would take huge amounts of capital and that the entrant's main source of external funds was its individual investors. The incumbent could reasonably foresee that the initial investors, with no experience in cable, would be unwilling, if not unable, to make such a large commitment without additional external financing. The incumbent also could reasonably expect that possible bank financing would depend on the cash flow generated by the entrant's initial operations.

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248. *See* Interview with Bramson, *supra* note 241.

249. At trial, the defendants raised the financing issue, arguing that the entrant would have been unable to obtain bank credit because of increased credit costs, liquidity problems, and depressed real estate. However, according to entrant's attorney and its economist, these economic conditions did not arise until after the project had been abandoned. Consistent with that assertion, the defendants offered these issues in mitigation of damages, not as a liability defense, claiming that over the next four or five years when the system would have been built, financing would not have been possible; and thus entrant's damages were limited. *See* Interview with Bramson, *supra* note 241; Interview with Hazlett, *supra* note 244.

250. *See* Hazlett, *supra* note 238, at 621.

251. Interoffice memorandum from incumbent's files (dated May 31, 1998) (court document on file with U.S. District Court in Pacific W. Cable Co. v. Sacramento Cable Television, Civil Action No. 88-985 (E.D. Cal. filed Aug. 4, 1988).

252. *See* Interview with Hazlett, *supra* note 244.

Finally, the fact that the entrant abandoned its effort to develop its existing cable market after only a few months of losses confirms the unwillingness of the entrant and its principals to commit additional capital, even to develop a market where they had a sunk investment. If the entrant and its investors were not prepared to do that, they would surely have been unwilling to make additional sunk-cost investments to expand beyond the initial submarket.

(5) *The predator can finance predation internally or has substantially better access to external credit than the prey.*

The incumbent could likely finance the predation internally. It spent only one million dollars on its predatory campaign.[253] Such an expenditure by a profitable monopoly, serving a market of four hundred thousand homes, appears to be within its internal funding capability. This conclusion is not diminished by the fact that it was almost wholly owned by Scripps Howard, a strong and well-financed national newspaper chain.

c. Probable Recoupment. Proof of recoupment requires ex post evidence that the alleged predatory pricing: (1) was capable of excluding or disciplining rivals or potential rivals and (2) thereby injured competition and consumers by enabling the predator to either raise prices or lower quality or dangerously threaten to do so. The two effects are related in that the exclusion or disciplining of rivals is the instrumentality by which competition and consumers are harmed.

While there was no specific evidence showing that the predator fully recouped its predatory losses through higher post-acquisition prices, other evidence pointed to probable recoupment, taking into account the plausibility of the strategic theory of financial predation, the fact that the pre-entry price was a monopoly price which predation restored, and the future losses that the predator avoided by preventing competition.

i. Exclusionary Effect on Rivals. The evidence showed that the incumbent's price reductions excluded—or were capable of excluding—the entrant. The incumbent's below-cost prices had severely limited the entrant's cash flow by limiting its customer base, raising its costs of capital, blocking its perceived ability to obtain additional capital, and, as a result, causing the entrant to cease expansion beyond its small customer base. Following the incumbent's drastic price cutting, aggressive marketing, and enhanced service, the entrant first halted all expansion and then withdrew from the cable TV market. This withdrawal caused the entrant to lose the bulk of its investment in the sub-market. Most of the entrant's investment in that market was non-salvageable. The entrant preserved an option to reenter the Arden cable sub-market, but it seems reasonable to conclude that the entrant lost most, if not all, of its original

253. *See* Hazlett, *supra* note 238, at 642.

investment.[254] Perceiving its inability to obtain external financing, entrant abandoned its plan to overbuild the Sacramento market.[255]

While we lack the data to reconstruct fully the facts bearing on exclusion of the prey, it appears that the entrant's losses and its foreclosure from credit markets were substantially caused by the incumbent's price-cutting strategy. Since the case was settled during trial, the causation issue cannot be definitively resolved. However, according to the information the authors have received from plaintiff's counsel and an expert witness in the case, the general tightening of credit and other possible nonpredatory causes had not yet occurred at the time of the violation.[256] Under these assumptions, it appears likely that the incumbent's predatory strategy substantially deterred additional investment and thus was a material cause of plaintiff's injury.[257]

ii. Injury to Competition and Consumers. Injury to competition and consumers requires a showing that the predation sufficiently raised prices or lowered quality to enable probable recoupment, or created market conditions that made such effects probable. The evidence shows that the incumbent, after successfully withstanding two entry attempts, regained its monopoly of the Sacramento market and, presumably, the ability to price without constraint of actual competition. Moreover, following the entrant's exit from the Arden sub-market, the incumbent promptly withdrew many discounts and special services it had offered during the period of rivalry, and after two years cancelled its entry-

254. The entrant continued to use its small cable system in the Arden sub-market until the trial and settlement, but shortly thereafter stopped service. Subsequently, the entrant sold its cable assets together with its microwave operation. It appears the purchaser abandoned the cable system. *See* Interview with Bramson, *supra* note 241.

255. The entrant did subsequently enter the Sacramento market via microwave, and it is conceivable that the entrant abandoned the cable market because it concluded that microwave would be more profitable. That business decision, however, likely was affected by the incumbent's predatory campaign. The fact that microwave was an inferior technology—much less channel capacity, line-of-sight difficulties, and weather sensitivity—suggests it was a second choice investment. *See* Hazlett, *supra* note 238, at 622. The main advantage of entry by microwave may simply have been that it was less susceptible to predation. A microwave system required only one transmitter, and once that investment was sunk, the entrant would have the incentive to remain in the market so long as price exceeded incremental cost for the entire system. By contrast, the sequential nature of the sunk cost investment in building a cable system made it especially vulnerable to predation.

256. *See* Interview with Bramson, *supra* note 241; Interview with Hazlett, *supra* note 244. Assuming the correctness of this information, the tightening of future credit could affect the magnitude of damages since it might constrain future financing of the entrant. It would not bar liability, however, for the credit foreclosure that occurred at the time of the violation and that led the entrant to abandon expansion plans before the credit tightening occurred.

257. It is of course possible that other factors may have contributed to entrant's inability to obtain financing and its decision to leave the cable TV market, as discussed previously. *See supra* text accompanying note 249. However, proof of exclusionary injury to the antitrust victim does not require a showing that predation was the exclusive cause of the plaintiff's injury. *See supra* notes 164-65. It suffices to show under varying judicial formulations that predation was a "material cause," "a substantially contributing factor," or "among the more important causes." AREEDA & HOVENKAMP, *supra* note 164, ¶ 363a.

induced lower rate in the Arden district.[258]

Perhaps the most significant evidence of recoupment, however, was the incumbent's avoidance of the losses it would otherwise have faced from competition—an issue neglected in *Brooke*. By its own estimate, the incumbent's successful effort to defeat new entry avoided losses of $16.5 million per year, with a predatory expenditure of only about one million dollars.[259] Moreover, no further entrants sought to enter the Sacramento market after the initial two entrants were rebuffed.[260]

The fact that the predator was able to recapture its total monopoly of the Sacramento market, even standing alone, appears to satisfy *Brooke*'s criterion of probable recoupment based on increased concentration and entry barriers. Nonetheless, had this factor not been present, the other evidence of market structure, conduct, and effects, illuminated by the soundly based theory of financial predation—as contrasted with the more speculative oligopolistic price coordination theory in *Brooke*—might have justified the finding of probable recoupment. No longer threatened with competition from a significant entrant, the predator's market power was predictably enhanced.[261] The incumbent's price cutting and other predatory tactics seem to have caused entrant to abandon its expansion plans. In addition, the incumbent's action may also have created a reputational barrier to entry, discouraging future potential entrants. We discuss reputational barriers in Part V below.

d. Price Below Cost. Although the case study does not analyze the issue of below-cost pricing, the price for cable service appears to have been well below average total cost and, at least for some sales, may have been below average variable costs. Predatory pricing and marketing efforts to prevent the entrant from gaining a viable customer base cost the incumbent fifteen dollars per subscriber per month, which amounted to half of the incumbent's total revenue.[262] Operating costs comprise fifty-five percent of total cost in the cable TV industry, in which the overall profit margin is twenty percent of revenues.[263] A fifty percent rate reduction could push price below short-run costs. Moreover, sales in the Arden sub-market were below any measure of cost: the incumbent reduced its monthly rate to one dollar per month for basic service, provided free installation for customers who were reluctant to sign up with the incumbent, and

258. *See* Hazlett, *supra* note 238, at 623.

259. *See id.* at 619, 642.

260. *See* Interview with Bramson, *supra* note 239.

261. Some may argue that reentry barriers were low because the entrant's cable facilities remained in the ground, but successful entry requires other factors beyond the cable facilities, such as programming sources where economies of scale exist. *See* PATRICK R. PARSONS & ROBERT M. FRIEDEN, THE CABLE AND SATELLITE TELEVISION INDUSTRIES 216 (1998) (large operators obtain discounts when purchasing programming); DAVID WATERMAN & ANDREW A. WEISS, VERTICAL INTEGRATION IN CABLE TELEVISION 119 (1997) (same).

262. *See* Hazlett, *supra* note 238, at 619 (estimated cost projections by incumbent).

263. *See* Interview with Hazlett, *supra* note 244.

gave free color televisions to customers who had already signed up with the entrant.[264] Thus, incumbent's prices in the Arden district were generally below average total cost, and at least some prices were below average variable cost.[265]

e. Efficiencies Defense. The case study contains no evidence supporting an efficiencies defense. Under the proposed approach, however, the incumbent would be permitted to show there was a legitimate business purpose for cutting prices below cost.[266]

V. SIGNALING STRATEGIES: REPUTATION EFFECT

A. SIGNALING STRATEGIES

In reputation effect and other signaling predation, the predator lowers prices to mislead the prey and any potential entrants into believing that market conditions are unfavorable. Signaling is a plausible predatory strategy because a firm's decision to enter or leave a market is based on its evaluation of expected

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264. *See* Hazlett, *supra* note 238, at 618, 620.

265. In our proposed cost analysis, the inquiry would focus on long-run average incremental cost (LAIC) and average avoidable cost (AAC). Cable prices would have been below LAIC, which includes not only operating costs but also any fixed costs incurred in waging the predatory expansion, such as connection of new or switching customers and predatory promotional costs not tied to specific sales. Price might also have fallen below AAC because the full operating costs and sale-specific promotional costs would have been avoidable if the incumbent had not made the predatory sales.

266. There are additional examples of industries where market conditions would have made financial predation a viable strategy. *See* David Gabel & David I. Rosenbaum, *Prices, Costs, Externalities and Entrepreneurial Capital: Lessons from Wisconsin*, 40 ANTITRUST BULL. 581 (1995) (telecommunications); Josh Lerner, *Pricing and Financial Resources: An Analysis of the Disk Drive Industry, 1980-88*, 78 REV. ECON. & STAT. (1995) (computer disk drives); Levine, *supra* note 235 (airlines); Morton, *supra* note 23 (ocean shipping); Weiman & Levin, *supra* note 29 (telephones); Great Atlantic & Pacific Tea Company case, HARVARD BUSINESS SCHOOL CASE SERVICES (1974) (case study on grocery chains prepared for class materials).

The airline industry provides a vivid example of a situation where market conditions facilitated predation. Following deregulation, repeated entry attempts by new airlines and small expanding airlines provoked fierce price wars, ending in almost all cases in the entrant's exit or its confinement to niche markets. *See* Levine, *supra* note 235, at 417-18. Airlines must invest large amounts to acquire or lease aircraft and support facilities. This generally requires heavy borrowing. *See id.* at 412. Because the business is risky and cyclical, lenders face difficulty in assessing borrowing risk. *See id.* at 436-37. Lending is further complicated by agency risk in determining the future profitability of the borrower and controlling its conduct once the loan is made. *See id.* The lending problem is likely to be acute for the new or recently established airline, which lacks a borrowing record. The entrant will be more dependent on outside funding than the incumbent because the incumbent can generate strong cash flow from markets not involved in the price war, while the entrant may face competition in all or most of its markets. *See id.* Moreover, lenders are reluctant to finance participants in price wars because of the difficulty of predicting outcomes—and because of the agency problems discussed earlier. *See supra* text accompanying notes 226-28. Thus, the entrant's staying power is limited as compared with that of the incumbent. For these same reasons the incumbent will have greater access to outside funding. Strikingly, each of the preconditions for financial predation is present. Although we cannot conclude from this alone that unlawful price predation occurred, the facts would certainly have warranted enforcement agency investigation. *See* Levine, *supra* note 235, at 478-79; *see also* Plaintiff's Complaint, United States v. AMR Corp., No. 99-1180-JTM (D. Kan. filed May 13, 1999) (appearing to advance theory of financial predation and related reputation effect). *See generally* Fones, *supra* note 132.

future revenues and costs.[267] Most firms contemplating entry or exit from an industry, however, do not have all the relevant information to determine future revenues and costs. To the extent an incumbent's firm is better informed than its competitors about cost or other market conditions—or can manipulate and distort market signals about profitability—it may be able to influence the profit expectations of its rivals. For example, an incumbent firm may be able to induce exit or prevent entry if, by setting low prices, its rivals believe that the incumbent's low prices reflect low costs.

Economic writers recently have developed several signaling theories based on the idea that a predator's low prices may influence the prey's and potential entrants' beliefs about future profitability and thus induce exit or deter entry.[268] These theories include reputation effect, test market predation, and cost signaling.

In reputation effect predation, the predator reduces price in one market to establish a reputation as a price cutter in other markets.[269] Therefore, a predator trying to establish a reputation for financial predation cuts price when it has superior financial resources (and when the other conditions for financial predation are present). Observing this conduct, a rival in another market or a potential entrant may rationally believe that the predator will engage in financial predation in this particular market. This reputation-induced belief reduces the future entrant's expected return and may deter entry. A reputation effect also may augment any signaling strategy by deterring entry or inhibiting competition in other markets or in the same market in later time periods.

B. REPUTATION EFFECT PREDATION

Reputation effects may be present when the predator sells in two or more markets or in successive time periods within the same market. One market or time period serves as a demonstration market, where the predator engages in overt predatory conduct, and the other market or time period constitutes the recoupment market, where the predator reaps the benefits from its predatory plan. The predator establishes a reputation for aggressive conduct in the demon-

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267. *See generally* Anthony Creane, *An Informational Externality in a Competitive Market*, 14 INT. J. IND. ORGAN. 331, 332 (1996) (information in new markets subject to great uncertainty); David M. Kreps & Robert Wilson, *Reputation and Imperfect Information*, 27 J. ECON. THEORY 253, 256 (1982) ("[I]n practical situations, entrants cannot be *certain* about the payoffs to the monopolist.").

268. *See* Fudenberg & Tirole, *supra* note 223; David M. Kreps et al., *Rational Cooperation in the Finitely Repeated Prisoners' Dilemma*, 27 J. ECON. THEORY 245 (1982); Kreps & Wilson, *supra* note 267; Paul Milgrom & John Roberts, *Predation, Reputation, and Entry Deterrence*, 27 J. ECON. THEORY 280 (1982); Michael Riordan, *Imperfect Information and Dynamic Conjectural Variations*, 16 RAND J. ECON. 41 (1985); John Roberts, *Battles for Market Share: Incomplete Information, Aggressive Strategic Pricing, and Competitive Dynamics*, *in* ADVANCES IN ECONOMIC THEORY FIFTH WORLD CONGRESS 157 (Truman F. Bewley ed., 1987); Saloner, *supra* note 5; David Scharfstein, *A Policy to Prevent Rational Test-Marketing Predation*, 15 RAND. J. ECON. 229 (1984); Steven C. Salop & Carl Shapiro, *A Guide to Test Market Predation* (mimeo 1980).

269. *See* DAVID G. BAIRD ET AL., GAME THEORY AND THE LAW, 178-86 (1994).

stration market that induces potential entrants to believe it will price aggressively in the future when faced with new competition. In this manner, reputation effect serves as a barrier to entry, allowing the predator to increase prices in the recoupment market.[270]

Although economic theory views reputation effect predation as a separate and distinct predatory strategy, an uncabined reputation effect theory may be too easy to assert and too difficult to prove. Therefore, our proposed approach would limit antitrust enforcement to cases in which the reputation effect either augments or intensifies another plausible predatory strategy, or more generally when it rests on the rational belief—in a world of imperfect information—that a predator who has once priced below cost in response to entry may have some natural advantage, such as lower costs, that will lead it to repeat such action in the future.

1. Economic Theory

When a predator faces future rivals in multiple markets or the same rival in successive time periods, an additional benefit of predatory conduct against a current rival may be to discourage entry of these future rivals. Indeed, prevention of future entry constitutes the paradigmatic case of reputation effect predation. By engaging in predatory pricing against current rivals, the predator can acquire a reputation for being a "tough" competitor—in the sense of projecting a perceived strategic advantage, such as lower costs, into other markets or time periods. Faced with the prospect of dealing with such a "tough" competitor, an existing rival, particularly a recent entrant, may exit or fail to enter altogether, and this may discourage financiers from backing either existing or future rivals—or otherwise discourage entry based on the belief that such conduct will be repeated in the future.[271] The incumbent's predatory reputation can then serve as an exclusionary mechanism protecting monopoly profits. Although this article discusses reputation effect predation mainly in the context of financial predation, a reputation effect strategy can augment any plausible predatory strategy.

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270. *See* Milgrom & Roberts, *supra* note 268, at 280-81.

271. The behavioral dynamic works as follows: (1) potential entrants perceive a risk that an incumbent that has once engaged in predation will again lower prices if further entry attempts occur; (2) entrants observe that the predator has already evidenced a "tough" approach to entry, and thus conclude there is some probability the predator will be "tough" in the future; (3) if a second entry attempt occurs and the predator again cuts price, potential entrants will now update and increase their probability assessment that the predator is "tough"; and (4) the predator knows entrants will act in this way, which in turn increases the predator's incentive to remain "tough." Moreover, if the predator is not the only firm remaining in the market, its rivals have an incentive also to act "tough," even if that is not their nature, so as to avoid being perceived as "soft" and willing to accommodate entry. Thus, reputation effect, which may be combined with other predatory strategies, as we propose, shows how predation can act as an entry or reentry barrier. *See* Kreps & Wilson, *supra* note 267, at 253; Milgrom & Roberts, *supra* note 268, at 303.

2. Reputation and Financial Predation

Reputation effects enhance the profitability of financial predation by making entry or reentry less likely. Future potential entrants observing the failure of the current entrant can only be more cautious in contemplating entry, whether or not they recognize the predatory nature of the price cutting. If potential entrants recognize that predatory pricing has caused the current rival's exit, fear of facing a similar fate may deter their entry. If potential entrants do *not* recognize that predatory pricing caused the rival's exit, they may simply conclude that entry is less profitable than they previously thought.[272] In either case, future entrants will have greater difficulty convincing customers to switch to their supply, because customers are now more likely to believe the new entrant will similarly be driven out of the market. An entrant also will find it more difficult in these circumstances to convince lenders to finance its project.

In addition, a reduced likelihood of entry may also have anticompetitive effects on the predator's existing rivals. Far from making the current rival's position more secure, the reduced probability of entry may actually hasten the exit of current rivals, and this may more than offset any gain to current rivals from increased entry barriers. This result may occur because, if the initial victim knows the predator is acquiring a reputation effect as a price cutter, the victim may assume the predator is less likely to halt its predatory pricing strategy if the victim remains in the market.[273]

In sum, reputation effects may enhance the power of financial predation—or any other predatory strategy—whenever the predator faces successive entry, whether in a single market or across multiple markets. In such a situation, the predatory action has a demonstration effect that increases the predator's payoff and at the same time lowers existing rivals' incentive to ride out the price war.[274]

3. Proof of Reputation Effect Strategy

As in the case of financial predation, proof of reputation effect predation

272. A formal model showing how entrants are deterred from entering a new market when they see current entrants fail, even though they do not observe the predatory action, can be found in Rafael Rob, *Learning and Capacity Expansion Under Demand Uncertainty*, 58 REV. ECON. STUD. 655 (1991). This model relies on the idea that potential entrants do not know exactly how profitable the new market is and attempt to learn general market conditions from the performance of current entrants. However, it is critical that some characteristics of incumbent firms be private information for reputation effects to emerge when entrants do not observe the predatory action. *See id.*; Milgrom & Roberts, *supra* note 268. Such characteristics might be an unknown cost advantage, a secret marketing plan, the manager's hidden agenda, etc. The basic point is that there are a wide variety of reasons why an incumbent firm might want to meet new competition by pricing aggressively. Any of these reasons can provide the foundation for a reputation effect.

273. For a detailed discussion of how a reputation effect based on financial predation can hasten the exit of an existing rival, see our separate discussion paper, PATRICK BOLTON, JOSEPH F. BRODLEY, & MICHAEL H. RIORDAN, PREDATORY PRICING: STRATEGIC THEORY AND LEGAL POLICY 80-81 (Princeton Univ. Ctr. for Econ. Policy Studies Working Paper No. 63, 1999).

274. *See id.* at 134-40 (numerical illustration of cost signaling combined with reputation effect).

requires proof of several preconditions showing that reputation effect predation can be a viable predatory strategy. As before, the preconditions must be supported by evidence of ex post effects and market conditions making recoupment probable in light of that strategy. The proposed preconditions for reputation effect predation are as follows:

(1) *The predator, a dominant multi-market firm, faces localized or product-limited competition or potential competition,*[275] *or alternatively, operating within a single market, the predator faces probable successive entry over time.*

Reputation effect predation always involves two markets or two time periods: a demonstration market, where the overt predatory conduct occurs, and a recoupment market, where the reputation consequences follow. The predator exhibits its predatory character in the demonstration market in order to induce the victim and potential entrants to believe the predator will cut the price in another market—or later time period—thereby injuring actual or potential competition.

(2) *The alleged reputation effect either reinforces another identified predatory strategy pursued by the predator, such as financial market predation, or is based on the perceived probability that a predator who has once cut price in response to new entry is likely to repeat that conduct in the future.*

A reputation effect may be either strongly or weakly plausible. It is strongly plausible when it augments or intensifies another predatory strategy, as in the financial market predation example. However, a reputation effect may also rest on the weaker, but still rational, belief (in a world of imperfect information) that a predator that has once priced below cost in response to new entry may have some natural advantage that would lead it to repeat such action against future entrants.[276] When a reputation effect is based on this more general and less focused reputation effect, stronger evidence of ex post recoupment would be required, as well as convincing evidence that the predator had deliberately pursued a reputation strategy, as required under the third element.

(3) *The predator deliberately pursues a reputation effect strategy.*

To prevent overinclusiveness, the proposed rule requires proof that the predator deliberately sought to acquire an entry-deterring reputation as a profit-

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275. By localized competition we mean a geographic area where a predator could lower price by an appreciable amount without immediately attracting customers from outside the geographic area. For example, this might be an area where outside customers face significant transportation costs. The definition of product-limited competition would be similar, but focused on the product market—for example, where a multi-product firm experiences competition for only a subset of its products.

276. Note that our approach avoids any reliance on the more controversial use of the reputation effect theory, in which a predator attempts to establish a reputation by projecting an irrational "toughness."

seeking strategy. Evidence tending to prove deliberate and systematic pursuit of such a strategy includes: (1) proof of a corporate plan to engage in reputation predation; (2) publicizing or disseminating information likely to create a reputation effect, such as information showing failure of a new entry in a particular sub-market due to price cutting by the predator; (3) suppression of information that might reveal bluffing by the predator (for example, the payment of large amounts to settle a predatory pricing suit—particularly if the settlement amount is secret), or to acquire a complaining victim in the demonstration market; and, perhaps most importantly, (4) repetition of the predatory action in multiple markets or over successive time periods, which strengthens the competition-reducing belief the predator seeks to induce.

(4) *The potential entrant observes the exit or other adverse effect experienced by the predator's existing rival in the demonstration market; such knowledge is to be presumed if it is commonly known in the industry.*

Finally, the potential entrant must observe the adverse effects of the predatory conduct in the demonstration market to sustain a claim that it was deterred from entry. The potential entrant, however, need not be aware that a predatory strategy caused these effects. It is sufficient if the potential entrant simply knows the predator's existing rival has been forced from the market or has suffered other serious economic harm. Exclusion or other economic injury to the predator's existing rival, even when the cause is not known, can discourage entry of the potential rival by indicating low market profitability.[277] Knowledge that the predator's existing rival has left the market or sustained serious injury can be presumed if it is commonly known in the industry.

4. Illustration: Entry into Local Telephone Market

Two recent case studies[278] involving entry into local telephone markets during the formative period of the Bell Telephone system illustrate the strategic approach to reputation predation. While these examples occurred some time ago, they have modern implications because they involved a network industry in which failure of initial competition led to an enduring monopoly, later sustained by regulation. The illustration discussed focuses on the efforts of an independent telephone company to enter the local market in Madison, Wisconsin, in competition with the established Bell System company.[279]

a. Factual Summary. Wisconsin Telephone (Bell) entered the Madison market in 1879. Sixteen years later, after the Bell patents had expired, an independent telephone company, Dane County Telephone (the entrant) sought to enter.[280]

277. *See supra* text accompanying note 272.
278. *See* Gabel & Rosenbaum, *supra* note 266; Weiman & Levin, *supra* note 29.
279. *See* Gabel & Rosenbaum, *supra* note 266, at 587.
280. *See id.* at 587.

The market appeared attractive for entry because Bell had obtained only 236 customers and these customers appeared far from satisfied.[281] Customers had complained of high prices and poor service, but Bell was unresponsive. Founded by local citizens and politically connected with organizers—including Robert LaFollette, later Governor, Senator, and Presidential candidate—the entrant offered service at only one-half the price charged by Bell. After only seven months, the entrant had signed up 400 customers on three-year contracts, which was 140 more than Bell had recruited in fifteen years.[282] The entrant was well-managed, offered good service, and, from the beginning, attempted to integrate the local telephone service into state and regional markets and, eventually, the national market.[283]

Bell responded by drastically cutting prices. Three months before the entrant began service, Bell reduced prices by twenty-five percent. In the three months following entry, Bell reduced its rates to one-quarter of their original level and offered free service to the city government, railroads, other businesses, and to any existing Bell customer who would agree not to remove its Bell telephone.[284]

Despite these inducements, the entrant continued to thrive. After three years, the entrant had 850 customers compared to Bell's 240. After ten years, the entrant provided service to 2500 Madison subscribers, while Bell served only 900. Expanding into the thirty-mile radius around Madison, the entrant served 3500 additional subscribers compared to Bell's 250. The entrant, increasing its relative market share, now served 7000 customers in the greater Madison region compared to Bell's 1150. The entrant's success was not, however, assured. It realized its future depended on construction of a full toll network connecting with regional and national markets. Lack of capital constrained these plans because the entrant had consumed its existing liquid capital in upgrading and expanding its local network and had difficulty raising additional funds.[285]

The entrant's financial problems were substantially caused by Bell's low pricing policies and other efforts to block the entrant's financing.[286] Bell maintained its low rates in Madison—and other competitive markets—at levels almost surely below its long-run average incremental cost,[287] which is the correct measure of costs for dynamically expanding, high sunk cost industries—

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281. *See id.* at 588.

282. *See id.* at 589.

283. *See id.* at 590.

284. *See id.* at 591.

285. *See id.* at 594.

286. For example, Bell pursued a public relations campaign to undermine the financial viability of independent telephone companies. *See* David Joshua Gabel, The Evolution of a Market: The Emergence of Regulation in the Telephone Industry of Wisconsin, 1893-1917, 157, 169 (1987) (unpublished Ph.D. dissertation, University of Wisconsin) (on file with author).

287. *See id.* at 153-54; Weiman & Levin, *supra* note 29, at 112-13. These authors state that price was below the local Bell company's average operating costs, including equipment rental charges from the parent, American Bell. *See* Gabel, *supra* note 286, at 149-50.

such as telephone markets—where short-run marginal costs may be close to zero.[288] Stymied in its efforts to raise additional funds, the entrant was able to pay a dividend of only about one percent per year. After thirteen years of operation, the entrant sold out to Bell at a price that was substantially below its shareholders' investment cost.[289] The buyout of local competitors on terms that would discourage further entry was a practice followed elsewhere by the Bell System.[290]

The problems the entrant faced in Madison confronted other independent telephone companies.[291] Bell followed similar pricing practices in other sections of the country, including Ohio, Illinois, upstate New York, and the southern United States.[292] Such practices tended to deprive entrants in local telephone markets of the cash flow needed to finance expansion.[293] Predictably, when another independent telephone company obtained a franchise and sought to construct a rival telephone network in Milwaukee, the organizers found they were unable to raise the necessary capital.[294]

b. Proof of Case. Reputation effect predation potentially provides a supplemental basis for establishing a predatory scheme and probable recoupment. For illustrative purposes, we confine our discussion to proof of these elements.[295]

i. Scheme of Predation and Supporting Evidence. The evidence showed that each of the preconditions for reputation effect predation was present:

(1) *The predator, a dominant multi-market firm, faces localized or product-limited competition or potential competition; or, alternatively, operating within a single market, the predator faces probable successive entry over time.*

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288. *See* MCI Communications Corp. v. AT&T, 708 F.2d 1081 (7th Cir. 1983), *cert. denied*, 464 U.S. 891 (1983). *See generally* AREEDA & HOVENKAMP, *supra* note 35, ¶ 741e.2.

289. The entrant sold its assets to Bell shortly after the telephone industry in Wisconsin was brought under state public utility regulation in 1907. Bell has lobbied hard for state regulation to gain protection from competition.

290. *See* Weiman & Levin, *supra* note 29, at 119.

291. *See* Gabel & Rosenbaum, *supra* note 266, at 604.

292. *See id.* at 606.

293. *See id.*; Weiman & Levin, *supra* note 29, at 116.

294. *See* Gabel, *supra* note 286 at 247-54. Bell also took other steps to discourage financing of the Milwaukee group, including contacting J.P. Morgan, the Bell System investment banker, to deny the group access to eastern financial markets. *See id.*

295. Most of the other elements of proof appear to be readily satisfied and, in any event, pose no unique problems not previously discussed. The market structure facilitated predation. Bell held a monopoly in the relevant Madison market. There were entry and reentry barriers, evidenced by high sunk costs and the absence of new entry after Bell had acquired its only existing rival, which never attempted to reenter the market. This might be explained in Madison by the fact that Bell maintained its low price for several years. But, relevant to the reputation effect, entry did not occur in other markets—such as Milwaukee—where price had *not* been reduced. As for the remaining elements, price was clearly below at least some measure of incremental cost in a dynamically expanding industry where AVC would have been a singularly poor cost standard, and the economic case studies of the Madison telephone market suggest no business justification for the below-cost pricing.

The predator, Wisconsin Bell, was the dominant multi-market firm in Wisconsin.[296] No other company had Bell's widespread network and presence in multiple Wisconsin markets. Bell held a monopoly in Wisconsin's major city, Milwaukee, as it did in most major American cities.[297] At the same time, the Bell system faced localized competition in many of its Wisconsin markets, which were centered in small- to moderate-sized communities. At one point, Bell faced actual competition in fifty percent of its local Wisconsin markets and potential competition in many more.[298] In these communities, as in Madison, Bell had a monopoly of telephone service prior to independent entry. While there was some coordination of entry by independent telephone companies into individual cities, entry did not occur simultaneously, but over time, dependent on the action of local groups.[299]

(2) *The alleged reputation effect either reinforces another identified predatory strategy pursued by the predator, such as financial market predation, or is based on the perceived probability that a predator who has once cut price in response to new entry is likely to repeat that conduct in the future.*

Bell's price cutting practices appeared to reflect a strategy of financial market predation, reinforced by a reputation effect. The entrant was cash-constrained and dependent on outside financing for expansion. Bell's price cutting tactics threatened the entrant's viability because future success depended on expanding its network connections beyond the local area. Bell was surely aware of this financial need, because it faced large capital requirements itself in expanding its network. However, Bell was able to finance predation internally, continuing to pay a healthy dividend throughout the predatory period.[300]

(3) *The predator deliberately pursues a reputation effect strategy.*

Several factors support the conclusion that Bell deliberately pursued a reputation effect strategy. First, Bell held its Madison rates below cost for thirteen years[301]—conduct that appears inexplicable in the absence of an anticipated reputation effect. Second, Bell followed a conscious strategy of buying out independents only at low prices that would discourage new entry.[302] Third, Bell pursued other exclusionary tactics that would have enhanced its predatory reputation, including a public relations campaign that implied that the independents were not financially solvent, made wasteful investments, and were overcapitalized; denial of interconnection with the Bell system even to noncompetitive independent companies; attempts to influence local regulatory policies to weaken

296. *See* Gabel & Rosenbaum, *supra* note 266, at 587.
297. *See id.* at 601-02.
298. *See* Gabel, *supra* note 286, at 71-78.
299. *See id.* at 85-86.
300. *See* Gabel & Rosenbaum, *supra* note 266, at 604.
301. *See* Gabel, *supra* note 286, at 153-54.
302. *See* Gabel & Rosenbaum, *supra* note 266, at 607.

rivals; and, at least in other sections of the country, expansion ahead of demand.[303] Thus, it appears that Bell sought to discourage independents from new entry and expansion by establishing a reputation for price cutting and other predatory and exclusionary actions.

(4) *The potential entrant observes the exit or other adverse effect experienced by the predator's existing rival in the demonstration market; such knowledge is to be presumed if it is commonly known in the industry.*

Managers of local telephone companies actively exchanged information. Indeed, the entrant's president took the lead in attempting to establish a regional and national network of independent telephone companies. He was in frequent contact with officers of other independent companies in Wisconsin and throughout the Midwest, exchanging information on the relation between the independents and Bell. Moreover, the rate wars and bitter contests between the independents and Bell were widely reported in the press.[304] Thus, the adverse effects of the price cutting on Bell's existing rivals were widely known within the telephone industry, and the independent rivals could easily have perceived that Bell's low pricing policy was a principal cause of their plight.[305]

ii. Probable Recoupment. Proof of recoupment requires ex post evidence that the alleged predatory pricing: (1) excludes or disciplines rivals or potential rivals, and (2) thereby injures competition and consumers by enabling the predator to raise prices or lower quality, or to dangerously threaten to do so. As we have seen, the two effects are related in that the exclusion or disciplining of rivals is the instrumentality by which competition and consumers are harmed.

(a) Exclusionary Effect on Rivals. In Madison, sustained below-cost pricing, extending over thirteen years, prevented Bell's existing rival from raising the necessary capital to expand service and construct a toll network. As a result, the rival ultimately sold out to Bell on unfavorable terms, receiving only a fraction of its original investment.[306] The rival's financing difficulties were substantially caused by the low pricing, which severely reduced the rival's return, allowed only a one percent annual dividend, and blocked additional financing. To be sure, other factors impeded the Madison rival, such as the refusal of the Bell system to interconnect, but the below-cost pricing was a significant and material cause of the Madison rival's exit.

The exclusion of the Madison independent was a deliberate mechanism to carry out Bell's reputation effect strategy. The Madison independent was a prime predatory target because its president was a leader among independents—not only in Wisconsin, but throughout the Midwest—and because Madison was

303. *See* Gabel, *supra* note 286, at 154-55, 157-69.
304. *See id.* at 97.
305. *See id.* at 153-96.
306. *See* Gabel & Rosenbaum, *supra* note 266, at 602.

the state capital where legislators could observe the benefits of competition firsthand. The sustained below-cost pricing served as a "dire warning" to potential entrants in other cities.[307] A later attempt by an independent group to enter Milwaukee failed for inability to obtain financing and similar effects occurred in other markets.[308] Thus, Bell's predatory strategy both excluded its existing rival in Madison and excluded, or was capable of excluding, potential rivals in Madison and elsewhere.

While the low pricing in Madison was a substantial cause of such reputation effect exclusion, there were other causes as well, such as pressures by Bell on banks and investment bankers to block financing of independents,[309] Bell's purchase of telephone equipment manufacturers who supplied independents, and poor accounting practices by the independents themselves. Whatever the impact of the other effects, economic studies generally agree that the predatory pricing was a significant cause of the widespread exclusion of the independent telephone companies from Bell's markets.[310]

(b) Injury to Competition and Consumers. Reputation effect predation injures competition and consumers because it raises entry barriers into the recoupment markets, which thereby fosters higher prices or reduced quality sufficient to enable probable recoupment or creates market conditions that make such effects probable. A striking feature of reputation effect predation is that recoupment occurs, not in the predatory market, but primarily in other markets or in the predatory market at a later time. The Wisconsin Telephone case provides a vivid example. Bell maintained its low prices in Madison for thirteen years before acquiring the entrant's assets, possibly delaying recoupment to the point where it was doubtful that predation could ever be profitable in Madison itself.[311] Moreover, the advent of state public utility regulation probably limited Bell's ability to raise prices subsequently.[312] Nevertheless, viewed through the lens of a highly plausible theory of reputation effect predation that served to augment

307. Gabel, *supra* note 286, at 153-54.

308. *See* Gabel & Rosenbaum, *supra* note 266, at 604.

309. For example, to impede the financing of entry in Milwaukee, Bell induced J.P. Morgan to use its influence to obstruct financing. *See* Gabel, *supra* note 286, at 248.

310. *See* David Gabel, *Competition in a Network Industry: The Telephone Industry, 1894-1910*, 54 J. ECON. HIST. 543, 567-68 (1994) (independents in Midwest vanquished by strategic moves, "not least of which was predatory pricing"); *see also* Kenneth Lipartito, *System Building at the Margin: The Problem of Public Choice in the Telephone Industry*, 49 J. ECON. HIST. 323 (1989) (AT&T's monopoly stemmed from managerial strategy, compromise with rivals, and ability to influence state regulators, not natural monopoly).

311. Bell's management estimated losses of between $10,000 and $15,000 per year. The discount at which Bell finally acquired the prey's assets amounted to $62,000, probably not sufficient to overcome these long years of losses. *See* Gabel & Rosenbaum, *supra* note 266, at 602-03; Gabel, *supra* note 286, at 154 n.2.

312. Bell actively sought regulation after passage of the state antidiscrimination law for telephone service, *see* Gabel & Rosenbaum, *supra* note 266, at 601, perhaps suggesting that Bell's expected return under regulation exceeded its anticipated return under the competition that might be induced if it could not discriminate in local markets.

financial market predation, the evidence strongly points to probable recoupment in other markets, stemming from reputation effects.

Following its below-cost pricing in Madison and in other markets, Bell, while maintaining low prices in Madison for several years,[313] was able to raise prices to a supracompetitive level in many other markets without inducing significant entry. Evidence that Bell's prices increased to supracompetitive levels appears from the fact that Bell's returns in competitive markets were only a fraction of its returns in monopoly markets and far exceeded its cost of capital. After the collapse of the independent telephone movement, from 1913 to 1935, Bell's cost of capital was between 5% and 6%, while its average return was 10.9%.[314] In the monopoly markets of Milwaukee, New York, and Chicago, Bell's returns were, respectively, 10%, 14.6%, and 16%. These large discrepancies strongly suggest a monopoly return, especially because following the demise of the independents, the growth rate for new telephones fell from 20.6% during the price wars to 5.5%, which is comparable to the growth rate before the independents attempted entry.[315] Further evidence that Bell could maintain substantially higher prices in its monopoly markets appears from the independents' intense lobbying effort in Wisconsin, which Bell vigorously opposed, to obtain legislation to limit price discrimination by telephone companies.[316]

Despite the high prices Bell charged in its monopoly markets, there was no wave of new entry into such markets. On the contrary, the high growth rate for new telephones during the competitive period, when the independents challenged Bell, fell back to levels that prevailed before the rise of the independents.[317] Bell regained control of the industry as the independents either sold out to Bell or accepted sublicensing agreements they had previously rejected.[318] While Bell's ability to maintain high prices without attracting new entry rested on more than one factor, predatory pricing was an important contributing cause.

Therefore, the below-cost pricing in Madison and elsewhere established a prima facie case of probable recoupment because: (1) the alleged scheme of predation was based on a highly plausible reputation effect strategy and the factual preconditions for such a strategy were present; (2) the predatory scheme excluded or was capable of excluding rivals or potential rivals; and (3) the likely effect was to induce a reputation effect that raised entry and reentry barriers in other local markets, enabling Bell to maintain its monopoly and charge high prices, and thereby injuring competition and consumers.[319]

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313. *See supra* text accompanying notes 301-03.

314. *See* Gabel, *supra* note 310, at 567.

315. *See id.* at 567; Gabel & Rosenbaum, *supra* note 266, at 604-05. The survival of the lower-cost independents would surely have reduced Bell's profits significantly.

316. *See* Gabel & Rosenbaum, *supra* note 266, at 597.

317. *See* Gabel, *supra* note 310, at 567.

318. *See id.* at 568.

319. It is occasionally argued that network or other efficiencies in telephone service make monopoly service more efficient. *See* MARKUS MOBIUS, DEATH THROUGH SUCCESS: THE RISE AND FALL OF INDEPENDENT TELEPHONY AT THE TURN OF THE CENTURY (Massachusetts Institute of Technology

VI. COST SIGNALING, DEMAND SIGNALING, AND OTHER PREDATORY STRATEGIES

Other signaling strategies likely to involve predatory pricing include test market predation and cost signaling, which are designed to discourage a prey from expanding. These theories of predation are not as well-developed in the economic literature as those of financial predation and reputation-effect predation.[320] Therefore, numerical examples are used to illustrate these theories. Given their incomplete development, our proposals for proving these theories are tentative. As suggested earlier, the degree of plausibility of the predatory scheme would affect the appropriate standard for proof of recoupment.[321] We begin with a theory of test market predation based on the prey's uncertainty about demand conditions.

A. TEST MARKET PREDATION

1. Economic Theory

In test market predation, a predator reduces price to prevent the prey from learning about market conditions and thereby discourages entry. The victim, lacking knowledge and experience in the market, seeks to introduce a new product or brand to compete with the predator's existing product. Rather than enter all available markets, the victim may probe market response by entering a limited "test market." The established firm (the predator) may attempt to frustrate this market test by cutting prices.

The predator cuts prices to reduce the entrant's sales in the test market, which prevents the entrant from discovering whether demand is sufficiently strong to justify its continued presence in the test market. The entrant instead observes demand for its product only under the exceptional circumstance of an ongoing price war. Therefore, the entrant's market test is foiled, and the entrant, unable

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Working Paper, 1999). *But see* Kenneth Lipartito, *supra* note 310, at 336. If so, Bell might have had an efficiencies defense based on lower costs. An alternative output-expanding efficiencies explanation might be that under the regime of competition existing in Madison, it is possible that Bell achieved efficiencies warranted by a more extensive infrastructure such that the low pricing in early years was output-expanding and in later years not below cost. Under either of these alternatives, if established by the facts—and if no less restrictive means existed to achieve such efficiencies—Bell would have had an efficiencies defense. This might prevent a finding of unlawful recoupment in Madison—as well as in other markets—because recoupment would rest on lower costs achieved through rapid expansion.

It might also be argued that Bell's low pricing was justified as promotional pricing designed to capture future network externality efficiencies. But this argument should be rejected because Bell was the long-standing incumbent and had ample time to achieve network economies by low pricing, if that was justified for non-predatory reasons. It bears emphasis that the promotional economies defense is limited to cases where the economies could not have been achieved by a less restrictive alternative.

320. *See generally* Ordover & Saloner, *supra* note 4, at 558-59; J. Roberts, *A Signaling Model of Predatory Pricing*, 38 OXFORD ECON. PAPERS 75 (Supp. 1986); Salop & Shapiro, *supra* note 268. The concept of test market distortion by rivals may have originated in earlier marketing literature. *See* John C. Hilke & Philip B. Nelson, *Caveat Innovator: Strategic and Structural Characteristics of New Product Introductions*, 8 J. ECON. BEHAVIOR & ORG. 213, 221 & n.8 (1988).

321. *See supra* text accompanying note 171.

to determine the strength of demand, abandons further entry attempts or enters the market on a smaller scale.

To analyze these strategies systematically, economic theory focuses on the following simplified story. An entrant is trying to decide whether to launch a new product to compete with an established brand. The entrant does not know whether demand is high or low. If demand for the entrant's new product is high, entry is feasible. If demand is low, the entrant will lose money. To enter the market at full scale is expensive. Thus, if the entrant must make its decision without additional information, it would stay out of the market because possible losses are too high to justify the gamble of new entry. However, by test marketing its new product on a limited basis, the entrant can gain sufficient information about future sales to determine whether entry will be profitable. The potential gain from successful entry fully justifies the cost of the market test. A simple example illustrates the entrant's dilemma.

Suppose the entrant believes that the probability of high demand is only 0.3, while the probability that demand is low is 0.7. If demand is high, the present value of the entrant's expected operating profit is $50,000, while if demand is low, the present value is only $10,000. The costs of the new production facility are $30,000, all of which are sunk costs. Therefore, in the absence of any information about demand, the entrant's expected return from entry—factoring in these probabilities and payoffs—is $22,000,[322] which is less than the $30,000 cost of entry. Based on this information, entry should not be profitable.

The entrant may attempt to obtain more information about demand by test marketing the new product at a cost of $5,000. If the entrant can determine that demand is strong, it will enter the market as long as its expected profit exceeds the cost of the test, as it would here. Therefore, if the incumbent responds passively to the test market campaign, the entrant will be able to ascertain demand for its product and will enter the market when demand is high. However, entry will reduce the incumbent's profits because, following entry, it can earn only duopoly profits, which are less than its previous monopoly profit. But by pursuing a strategy of test market predation, the incumbent may be able to block or impede entry by distorting the data the entrant receives from its test market experiment so the entrant cannot determine whether demand is high or low.

Suppose, for example, the entrant's product is of higher quality than the incumbent's product, such that customers would be willing to pay more for the entrant's superior product. If the incumbent can cut price below its costs, a significant fraction of customers who would have bought the new product may now stay with the old product. As a result, the entrant will not be able to learn very much about the demand for its product and consequently may decide not to enter.

It does not matter whether the incumbent's price cutting is open or secret.

322. The calculation is as follows: (0.7 x $10,000) + (0.3 x $50,000) = $22,000.

Even if the entrant observes the price cutting, the incumbent may be able to distort the information the entrant receives from the test market so as to block entry. The entrant seeks to determine whether customers will pay more for its high quality product. Although the entrant may know the incumbent's price is below cost and is not sustainable on a marketwide basis, the entrant cannot judge what fraction of customers would purchase its new, higher quality product under normal market conditions. The entrant's test market experiment would then be frustrated and the entrant may decide not to enter the market.

2. Proof of Test Market Predation Strategy

Proof of a plausible strategy of test market predation would require a showing of four essential preconditions that establish the strategy's potential viability. As in the other theories, proof of these preconditions would establish a violation only if supported by evidence of market conditions and effects making recoupment probable in light of that strategy (and proof of the other elements of our proposed rule). The preconditions are as follows:

(1) *The predator observes that the victim is attempting to enter a limited product or geographic market with a new product or brand.*

The victim must be attempting to test the market response to its product on a limited basis and the predator must know that this is occurring.

(2) *The predator cuts prices below cost on its own competing product or brand, either following or in anticipation of the victim's entry.*

The price cutting, which may be either open or secret, includes price reductions made in anticipation of entry, as well as following entry. Price cuts made before entry must be included in order to prevent evasion of the rule.

(3) *The predator's price cutting in the test market differs from its pricing conduct in other markets where it faces sustained competition.*

The anticompetitive significance of the predator's price cutting in the test market is illuminated by comparing it with the predator's pricing conduct in other markets.[323] Below-cost pricing only in the test market is strongly consistent with test market predation, particularly if the price cutting is in response to entry rather than to shifts in cost or demand.

(4) *The price cutting prevents the victim from learning about demand conditions under normal competitive conditions.*

Test market predation will injure competition only if it prevents the victim

323. The recent DOT Guidelines on predatory pricing follow this approach by comparing the predator's capacity expansion in the predatory market with its conduct in other markets. *See* DOT Proposal, *supra* note 5, ¶ 49,227.

from learning that demand for its product has strength sufficient to warrant its continued presence in the test market or expansion into new markets. The victim's disability would be measured not by the self-interested, subjective testimony of the victim, but by the objective standard of whether a representative firm in the industry would be able to assess demand under the conditions caused by the predator's below-cost pricing. For example, this precondition might be satisfied if the incumbent cuts its price to such a low level that very few consumers buy the victim's product. Application of these criteria can be illustrated by examining the facts taken from a well-known FTC decision.[324]

3. Illustration: Entry into the Eastern Coffee Market

In the 1970s, General Foods, the dominant seller of coffee in the eastern United States, responded to the entry of a rival brand by severe price cutting in selected markets. While the Federal Trade Commission ultimately found the low pricing to be lawful in a 1984 decision,[325] the facts nevertheless provide a useful scenario to illustrate application of our proposed approach to test market predation.[326]

a. Factual Summary. General Foods, through its well-known Maxwell House brand, dominated the eastern coffee markets with a market share of forty-three percent in the East as a whole, and market shares in various eastern metropolitan areas of up to sixty percent.[327] In 1971, Procter & Gamble (P&G), which had not previously sold coffee in the East, sought to test market its Folger brand through entry into a few, carefully selected eastern metropolitan areas.[328] General Foods responded by cutting the price of Maxwell House below average variable cost in test markets Procter & Gamble was attempting to enter.[329] The price cutting was intense. Maxwell House was sold below average variable cost for a year or longer in various markets, and at times below the cost of the unprocessed green coffee beans.[330]

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324. As in the prior examples, we do not attempt to assess the ultimate merits of the case, and the facts at our disposal may be incomplete because we rely on what appears in the published FTC opinions and articles by two FTC economists who worked on the case, *see* sources cited *infra* note 326. Nevertheless, the facts available provide a useful factual context in which to discuss market predation.

325. *See In re* General Foods Corp., 103 F.T.C. 204 (1984).

326. The case is discussed in strategic terms by the two FTC economists who worked on the case, relying mainly on reputation effect, but also mentioning test market signaling as an intuitive concept. *See* Hilke & Nelson, *supra* note 320, at 219-28; *see also* Elzinga & Mills, *supra* note 106, at 889 (discussing possible reputation effect, but finding recoupment unlikely). However, there is no mention of strategic theories in the decisions of the FTC or the administrative judge.

327. *See General Foods*, 103 F.T.C. at 339.

328. *See id.* at 216.

329. *See id.* at 295.

330. *See* John C. Hilke & Philip B. Nelson, *Strategic Behavior and Attempted Monopolization: The Coffee (*General Foods*) Case*, *in* THE ANTITRUST REVOLUTION 208, 222 (John E. Kwoka, Jr. & Lawrence J. White eds., 1989). The price also appeared to be below average avoidable cost since the cost of the unprocessed bean would appear clearly to be an avoidable cost.

Procter & Gamble had a practice of carefully test marketing brands before undertaking large-scale entry.[331] Following the drastic price reductions on Maxwell House coffee, P&G made no attempt to enter other eastern markets for several years.[332] However, the FTC majority dismissed the case on a finding that General Foods lacked monopoly power.[333] The Commission held that General Foods did not have market power because the relevant market was *not*, as FTC Complaint Counsel argued, particular metropolitan areas, but presumably some broader market.[334] In addition, the Commission found that high excess capacity existed in coffee production, entry barriers were low, and, accordingly, General Foods had no ability to exclude competitors or raise consumer prices.[335]

b. Proof of Case.

i. Facilitating Market Structure. The evidence showed that each of the strategic preconditions for reputation effect predation was arguably present. As stated, the FTC found an absence of a monopolistic or facilitating market structure.[336] The negative finding on market structure was not inevitable. In fact, it was at least arguable that the relevant markets were the local metropolitan areas where P&G was attempting to enter. General Foods set different prices in different metropolitan markets depending on the strength of competition, and Maxwell House coffee commanded a premium price at the wholesale level, catapulting General Foods's coffee profits into the top five percent of profitable firms.[337] However, the purpose of this analysis is not to dispute the FTC's findings on market definition and market power, but to illustrate the application of the proposed approach to test market predation. Thus, this discussion will assume that General Foods had market power in eastern metropolitan markets.

ii. Scheme of Predation and Supporting Evidence.

(1) *The predator observes that the victim is attempting to enter a limited product or geographic market with a new product or brand.*

This element is easily satisfied. The alleged predation is General Foods's response to the test market entry of Folger into four eastern metropolitan

331. *See General Foods*, 103 F.T.C. at 216.

332. *See* Hilke & Nelson, *supra* note 330, at 224; *see also* F.M. SCHERER & DAVID ROSS, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 388 (1990).

333. *See General Foods*, 103 F.T.C. at 364.

334. *See id.*

335. *See id* at 358-59, 364.

336. *See id.*

337. The high wholesale price reflected the "featuring," or promotional, advantage that Maxwell House coffee commanded as the largest selling brand. *See* Hilke & Nelson, *supra* note 330, at 215 n.25, 322; *see also In re* General Foods Corp., 103 F.T.C. 204 (1984).

markets.[338] General Foods reduced the price of Maxwell House in direct response to Folger's entry into particular markets, but did not reduce prices in other markets.[339] This did not occur by accident, but was based on General Foods's observation of Folger's entry into the test markets. Indeed, General Foods's price reduction was a deliberately chosen corporate strategy.[340]

(2) *The predator cuts prices below cost on its own competing product or brand, either following or in anticipation of the victim's entry.*

Following P&G's entry into the Cleveland, Pittsburgh, and Syracuse markets, General Foods priced Maxwell House below its average variable cost—and presumably short-run incremental cost—over a sustained period in these markets. In Syracuse, the price was held at this low level for seven out of nine successive quarters.[341]

(3) *The predator's price cutting in the test market differs from its pricing conduct in other markets where it faces sustained competition.*

General Foods faced long-standing competition in all of its eastern markets; its largest market share in any metropolitan area was sixty percent. Yet, it only reduced prices in markets that Folger sought to enter.[342] Moreover, it was only within the Syracuse test market that General Foods introduced a "fighting brand" (Horizon), which, according to the Administrative Law Judge, had the "sole function . . . to blunt Folger's Syracuse entry by imitating its packaging."[343] Folger presented a serious challenge to Maxwell House, because Folger was the most popular coffee brand in the West and was backed by a strong company. But that only cements the proof of this element, showing the price reduction, targeted against the new entrant, differed from its pricing conduct in other competitive markets.

(4) *The price cutting prevents the victim from learning about demand conditions under normal competitive conditions.*

General Foods's drastic price reductions on Maxwell House appear to have clouded test results and delayed entry, according to the two FTC economists.[344] P&G was known to be a careful marketer that required its test markets to stabilize and show satisfactory returns before it would expand sales—a rational business approach.[345] General Foods priced Maxwell House below cost for

338. *See General Foods*, 103 F.T.C. at 208.
339. *See* Hilke & Nelson, *supra* note 330, at 222, 224.
340. *See General Foods*, 103 F.T.C. at 155-70, 240-42.
341. *See id.* at 340.
342. *See* Hilke & Nelson, *supra* note 330, at 223-24.
343. *General Foods*, 103 F.T.C. at 297.
344. *See* Hilke & Nelson, *supra* note 320 (article written after the decision).
345. *Id.*

sustained periods, thereby distorting test market results. Moreover, the introduction by General Foods of a new brand—Horizon—further attempted to disrupt test market sales.[346] Thus, based on these facts, at least, it appears that a representative firm in the industry could rationally have concluded the below-cost pricing prevented it from ascertaining market demand in its test markets.

The other elements necessary to sustain a violation—exclusion of rivals, probable recoupment, price below cost, and the efficiencies defense—require little discussion in view of the record. The FTC never reached these issues because it disposed of the case for failure to prove market power.[347] However, assuming the presence of market power, Complaint Counsel presented evidence that, if accepted, would have supported findings on these remaining elements.[348] The below-cost pricing appeared to have had its intended exclusionary effect on rivals. The two FTC economists who worked on the case claimed in a post-predation article that P&G delayed further entry into the East in part because of these "test-market distortion effects."[349] These effects led P&G to conclude further market tests were needed.[350] In fact, P&G delayed wider entry beyond its initial test markets for several years, so that it took a full eight years from P&G's first test market entry to complete its planned expansion into the East.[351] Indeed, internal business documents showed that delaying the entry of the Folger brand was General Foods' explicit goal.[352]

Probable recoupment was supported by evidence that after the price-cutting in the Cleveland and Pittsburgh test markets, General Foods was able to maintain higher prices in other eastern markets.[353] The resulting deferral of P&G's entry in the East for several years should have enabled General Foods to recoup fully its predatory investments in the limited test markets—which injured consumers by maintaining prices in the broader eastern markets and delayed the entry of a new brand.[354] Proof that General Foods held price below

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346. *See* Hilke & Nelson, *supra* note 330, at 225. Apparently the fighting brand strategy proved unsuccessful, however. *See id.*

347. *See General Foods*, 103 F.T.C. at 366.

348. *See* Hilke & Nelson, *supra* note 330, at 222-29.

349. *Id.* at 224; *see also* SCHERER & ROSS, *supra* note 332, at 388.

350. *See* Hilke & Nelson, *supra* note 320, at 217.

351. *Id.* at 219.

352. *See General Foods*, 103 F.T.C. at 209-10, 250.

353. *See* Hilke & Nelson, *supra* note 330, at 223.

354. Professors Elzinga and Mills, one of whom served as an economic witness for General Foods, attempted to measure the magnitude of recoupment needed to make predation profitable, concluding that recoupment was not feasible. *See* Elzinga & Mills, *supra* note 106, at 882-89. However, their estimates are limited to recoupment in the test markets themselves, so these results are not surprising because most of the recoupment would naturally come in other markets. They agree that reputation effects in other markets could provide a stronger basis for proof of recoupment, but reject the possibility because an asserted counterstrategy of "hit and run" entry, facilitated by low storage costs of coffee, would foil recoupment. Whatever that argument's merits, which are not specified in any detail, they would not apply to test market predation where the predatory effect is caused by the predator's "jamming" of the test market signal. With test market results blurred, the victim remains uncertain as to whether entry would be profitable.

its average variable cost for at least a year, and in some cases longer, established below-cost pricing.[355] Thus, the burden of proof shifted to the defendant to establish an efficiencies justification.

The alleged predator offered an efficiencies defense, asserting it had reduced price to meet competition from the Folger brand. But, because the predator cut price below its own average variable cost, the meeting-competition argument standing alone would provide no defense under our proposed rule.

B. COST SIGNALING

1. Economic Theory

In cost signaling, a predator drastically reduces price to mislead the prey into believing that the predator has lower costs, inducing the prey to exit the market. More specifically, a predator trying to establish a reputation for low cost cuts its price below the short-run, profit-maximizing level. Observing the predator's low price, the prey rationally believes there is at least some probability that the predator has reduced costs. This lowers the prey's expected return and causes the prey to exit. Cost signaling predation is best explained by an illustration.

Consider an industry that has only two firms. Both firms have the same costs initially, but one firm (Firm 1) may be able to reduce its production costs through an important technical innovation, management change, exclusive access to a cheap input, or similar means. If any of these events occur, Firm 1 will be able to charge much lower prices. Suppose further that the cost reduction will be so great that Firm 1 can act as a monopolist and raise its prices to the full monopoly level; consequently, the second firm cannot compete, and must leave the market.

A predatory problem potentially arises when Firm 1, having failed to achieve a cost breakthrough, misleads the second firm into believing Firm 1 has actually succeeded. To convince its rival, Firm 1 reduces its price to what it would have charged had it actually made the cost breakthrough. The potential victim suspects that Firm 1 may be bluffing, but it cannot be sure. Indeed, if it knew for certain that Firm 1 was bluffing, it would remain in the market; if it knew for sure that Firm 1 had achieved the cost breakthrough, it would quit the market because further competition would be fruitless. But, the victim has imperfect knowledge. Instead, the intended victim must make a probability assessment, based on available information, to determine whether its expected return from staying in the market exceeds its expected return from leaving—and investing its capital elsewhere.

A strategic analysis of cost signaling shows that under a range of plausible conditions, the victim will leave the market even though it strongly suspects the predator is bluffing. Suppose that if Firm 1 had made a cost breakthrough, it would have been able to reduce its previous market price from sixty to forty

355. *See* Hilke & Nelson, *supra* note 330, at 222.

dollars, causing its rival to exit. In fact, Firm 1 has achieved no cost breakthrough, but still lowers its price to forty dollars in an effort to mislead its rival and induce it to leave the market. The rival, unable to observe Firm 1's actual costs, sees only that Firm 1 has reduced its price below the rival's cost.

The victim, observing the price reduction, can only guess whether it results from a cost breakthrough. In forming its estimate, the victim will rationally use all available information. One important piece of information is Firm 1's price. If the price is low, the victim may reasonably assume that there is some increased likelihood that Firm 1 has been able to reduce its costs. The victim will add this to other information, such as the fact that Firm 1 has recently hired a new management team, in order to make an overall assessment.

To see why this predatory strategy may succeed, even though the victim is skeptical about Firm 1's cost breakthrough, put yourself in the shoes of the potential victim. The victim must decide whether to leave the market or stay. The victim knows if it leaves the market, it can pursue other investment options. While the victim finds these options less desirable than its present business, they are nonetheless profitable. Moreover, they can presumably be pursued without risk of predatory strategies. On the other hand, the victim recognizes if it remains in the market, one of two things will happen. The victim will find that Firm 1 has indeed achieved a cost breakthrough, in which case it stands to lose everything through bankruptcy. Alternatively, the victim will discover that Firm 1 is bluffing, in which case it will be able to remain in its existing profitable market.

The victim must consider the probability that Firm 1 has made a cost breakthrough and calculate its expected returns if it stays or leaves the market.[356] This example shows that if the victim has an alternative—albeit less profitable—investment available if it withdraws its capital, the victim may choose to withdraw its capital and leave the market, even when it thinks that Firm 1 is probably bluffing.[357] The only ways the victim and consumers can attempt to rectify this outcome is by bringing a predatory pricing suit or by persuading the government to take enforcement action.

A limiting factor in applying a cost signaling theory is the possible inconsistency between the low price, predatory bluffing strategy, and subsequent recoupment. Under the recoupment requirement of *Brooke*, as under our proposed approach, it must be probable that the predator can recoup its losses by raising

356. In our more detailed discussion paper we trace out the analysis using a numerical illustration. *See* BOLTON, BRODLEY, & RIORDAN, *supra* note 273, at 123-27.

357. This conclusion necessarily rests on specific factual assumptions. Suppose the victim's gain from staying in the market when the predator is bluffing is $95,000, its loss from remaining in the market when the predator has made a cost breakthrough is $5000, and its profit from withdrawing its capital and investing in the next best alternative is $55,000. In our discussion paper, we show that if the victim believes the two events—bluffing or cost breakthrough—are equally probable, the victim will leave the market since the expected payoff from leaving is $55,000, while the expected payoff from staying is only $45,000. Only when the probability of bluffing exceeds 60% will the victim choose to stay. *See id.*

price after the prey exits the market.[358] However, an attempt to do so risks revealing the signaling strategy to the prey and other potential entrants, causing them to upgrade their estimates of market profitability. In the absence of substantial entry and reentry barriers, the prey or other entrants would then have an incentive to enter or reenter the market, preventing recoupment. Under these circumstances, the threshold structural requirement that predatory markets have high entry and reentry barriers assumes particular importance.

2. Proof of Cost Signaling Strategy

Proof of a strategy of cost signaling predation would require a showing of several preconditions. As in the case of financial predation, fulfillment of these preconditions would establish a viable predatory strategy, but would not in itself prove an antitrust violation. Proof of violation would require proof of the other elements, as set forth above in the proposed rule.

a. An event, or series of events, known by the victim, has occurred which could have enabled the predator to significantly reduce its variable costs. Cost signaling is most plausible when there has been some development in the industry that could have reduced the predator's variable costs.[359] For example, the predator may have made an important innovation, hired a new management team or CEO, engaged in extensive downsizing, or obtained exclusive access to a cheap source of foreign supply or other scarce input. Such development would normally be common knowledge in the industry and, therefore, known to the victim. However, if the event is kept secret, the plaintiff would have to prove it had actual knowledge of the new development. While cost signaling might occur without such a triggering event, cost signaling should be limited to those cases because otherwise it is not very plausible that predator and prey have asymmetric information and costs.

b. At or about the same time, the predator significantly reduces its price. The timing of the price reduction must be sufficiently close to lead an outside firm to strongly suspect the price reduction stems from the observed cost-reducing event.

c. As a result of such a price reduction, the victim could rationally believe the predator may have lowered its costs—in the past the predator has reduced its price when costs fell significantly. The victim must have believed the defined

358. *See* Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 225 (1993).

359. The relevant cost is variable cost, or more specifically, marginal or average avoidable cost, because a reduction in fixed cost does not impel the firm to reduce its price, while a reduction in marginal or avoidable cost necessarily leads the profit-seeking firm to reduce price and expand output. In the latter case, the profit-maximizing price—when marginal cost equals marginal revenue—is reduced due to the fall in short-run marginal cost (marginal revenue remaining constant), leading to lower price and increased output. Thus, in this instance, a price reduction may most convincingly signal reduced cost.

event could have caused the price reduction for any cost signaling strategy to be at work. However, the victim's own testimony about its belief may not be credible since it would have an incentive to misrepresent, and because proof of predatory pricing should not rest on reflective evidence of subjective belief, but rather on objective evidence of corporate conduct.[360]

Thus, this approach suggests, as in the case of test market predation,[361] that the victim's belief be tested by the standard of a reasonable firm: would a representative firm in the industry reasonably believe the observed event caused the price reduction? Such belief would be reasonable if either: (1) the predator has in the past actually reduced its prices when costs fell, or (2) the price reduction followed an announcement by the predator that it had reduced its costs. Such a belief would *not* be reasonable if it is commonly known in the industry that the predator's costs have not fallen, or if the victim itself has actual knowledge that costs have not decreased. The rational firm need not have reason to believe with certainty that the predator has achieved a cost breakthrough, but only that it is significantly probable.

More incriminating evidence, which may sometimes be available, would strengthen the victim's belief that the price reduction is predatory. Such evidence includes: (1) false announcements of a cost breakthrough, research, and development advance, or other event that could significantly reduce the predator's costs; (2) biased cost reports or similar accounting distortions made available to the public or to the industry; or (3) proof of a corporate plan to engage in cost signaling.

d. The possible cost reduction is of sufficient magnitude to require the victim to exit or to limit its expansion into other markets. The price reduction, to be predatory, must have reasonably caused the victim to leave the market or restrain its future growth or expansion. The best objective indicator of whether the price reduction had this effect is the reasonable firm standard: would a representative firm of size comparable to the prey deem the price reduction large enough to induce the prey's exit or to constrain its pricing or other operations?[362]

VII. POSSIBLE OBJECTIONS AND COUNTERSTRATEGIES

Critics of strategic analysis suggest a variety of objections and counterstrategies by which the prey, consumers, or market conditions can foil predation.[363]

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360. *See* David Genesove & Wallace P. Mullin, Validating the Conjectural Variation Method: The Sugar Industry, 1890-1914 (National Bureau of Economic Research Working Paper 5314, Oct. 1995) (unreliability of reflective evidence of corporate knowledge or purpose, as compared with credible internal evidence of corporate plans and conduct).

361. *See supra* text accompanying note 324.

362. For an application of these criteria to the facts of a specific case and for an analysis of how reputation may magnify the effects of cost signaling, see BOLTON, BRODLEY, & RIORDAN, *supra* note 273, at 127-40.

363. *See, e.g.*, Frank H. Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263 (1981).

These include: (1) coalitions between the victim and its customers; (2) coalitions among victims coordinating a defensive strategy; (3) counterthreats by the victim to enter the predator's other markets; (4) customer stockpiling; (5) the classic "chain store paradox" that allegedly makes predatory strategies noncredible; and (6) sale of the victim's assets to a successor firm if the victim fails.[364] In addition, a recent critique asserts that managerial compensation contracts provide no incentive for managers to engage in predation.[365]

A. COUNTERSTRATEGIES

A key limitation of the asserted counterstrategies is that they implicitly assume market participants have full—or at least symmetric—information. The consequences of assuming perfect or symmetrical information are striking. If market participants are fully informed, and if credit markets are similarly well informed, as Judge Easterbrook generally assumes,[366] then there is no need to pursue elaborate counterstrategies. The prey and its investors will have knowledge of the predator's strategy and remain in the market, drawing funds if necessary from willing financial institutions. The assumption of perfect information, however, rejects a fundamental premise of modern economic theory that firms typically act on the basis of imperfect and asymmetric information.

In addition, the proffered counterstrategies face other impediments, including the possibility of effective countermoves by the predator, the constraint that transaction costs place on coordinated group action, the free rider problem which hampers coalition formation by predatory victims and their customers, and the predator's monopoly power, which enables it to outbid the prey in any bidding contest since the predator earns monopoly profit if it retains its monopoly, while the prey presumably earns only a competitive return in competing with the predator. Finally, a countercoalition involving rival firms may in some cases raise antitrust problems and may also be difficult to enforce.[367]

The counterstrategy thesis holds that one way an entrant can foil predation is

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364. It is important to state the limitations of the counterstrategies argument and of our rejoinder. Unlike the strategic theories considered in this paper, the counterstrategies that assertedly foil predation do not rest on an equilibrium analysis—an exhaustive and logically rigorous analysis that works out all moves and countermoves to the described strategies. Instead, the argument is simply that the counterstrategies are plausible. Since no equilibrium analysis or model is typically offered, we can only point to potential problems with the underlying logic or empirical plausibility of the asserted counterstrategies. Absent an analysis as rigorous as that contained in the economic theories described in our paper, the counterstrategies cannot provide a firm basis for rejecting our proposals even if they may point to qualifications to some of the strategic theories considered in this paper. We are indebted to Alvin Klevorick for this observation.

365. *See* LOTT, *supra* note 41, at 28-30 (discussed in Appendix).

366. *See* Easterbrook, *supra* note 363, at 286.

367. *See generally* Louis Kaplow, *Extension of Monopoly Power Through Leverage*, 85 COLUM. L. REV. 515, 528-38 (1985). Antitrust problems can arise because under some of Judge Easterbrook's scenarios, coalitions between customers who are competitors or potential competitors may involve agreements on market entry amounting to unlawful market allocation or price fixing in purchasing contracts. Such agreements may be difficult to enforce because each participant has an incentive to hold back and let others take costly action to foil the predation. *See id.* at 535-36.

by entering into long-term contracts with its customers. Economically, customers have an incentive to sign such contracts if the entrant offers them a lower price than the monopoly price the predator would charge. Furthermore, the entrant can overcome customer reluctance by making the contracts contingent on the signing of enough other customers to assure the entrant's viability.[368] The plausibility of this counterstrategy is limited, however, when information asymmetry and other factors are taken into account. First, information asymmetry may block coalition formation. For example, in the case of cost signaling, if a poorly informed prey is misled by the predator's low price into believing the predator has low costs, customers would be similarly deceived; therefore, the coalition between the victim and customers will not form.[369]

Second, the predator may have anticipated the entrant's counterstrategy by binding its customers to long-term contracts—possibly reinforced by penalties for breach—before the entrant begins marketing its product.[370] Moreover, the predator need not bid against the entrant for all future customers, but only for sufficient customers to make entry nonprofitable.[371] As the number of customers increases, the probability that any individual customer is pivotal to the blocking of the prey's entry becomes smaller and smaller.[372] As a result, the amount the predator must cede, through reduced prices, to a contested customer shrinks drastically, so the predator may need to reduce prices very little to foil the entry attempt.[373]

Third, persuading large numbers of customers to sign long-term contracts may involve substantial transaction costs and increases the likelihood of encountering a free rider problem. Each customer, preferring to let others take the risk of signing with a new entrant, has an incentive to hold back from signing the contract. Yet, if the entrant becomes viable, customers who did not sign with the entrant will still receive the benefits of competition between suppliers.[374] Free rider problems are lessened, but not removed, even if the entrant makes its contracts with customers contingent on signing of enough other customers to assure the entrant's viability. Until the entrant has actually established

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368. *See* Easterbrook, *supra* note 363, at 271.

369. If customers are not as well informed as the entrant or the incumbent about potential future price cuts, then it may simply be too costly to persuade customers to lock themselves into long-term contracts. *See* Philippe Aghion & Patrick Bolton, *Contracts as a Barrier to Entry*, 77 AM. ECON. REV. 388, 389 (1987).

370. *See id.* at 396-97; Joseph F. Brodley & Ching-to Albert Ma, *Contract Penalties, Monopolizing Strategies, and Antitrust Policy*, 45 STAN. L. REV. 1161, 1163 (1993).

371. *See* Krattenmaker & Salop, *supra* note 33; Michael H. Riordan & Steven C. Salop, *Evaluating Vertical Mergers: A Post-Chicago Approach*, 63 ANTITRUST L.J. 513, 521-22 (1995) (customer foreclosure can drive entrant's output below viable scale, making entry unprofitable).

372. *See* Zvika Neeman, *The Freedom to Contract and the Free Rider Problem*, 15 J.L. & ECON. ORG. 685 (1999). *See generally* Eric B. Rasmusen et al., *Naked Exclusion*, 81 AM. ECON. REV. 1137 (1991); Ilya R. Segal & Michael D. Whinston, *Naked Exclusion: Comment*, 90 AM. ECON. REV 296 (2000).

373. *See* Rasmusen et al., *supra* note 372, at 1143-44.

374. *See* Aghion & Bolton, *supra* note 369, at 398; Kaplow, *supra* note 367, at 531-36; Rasmusen et al., *supra* note 372, at 1141, 1144.

its sustainability in the market, a risk-averse customer will stay out of the coalition.

Similar problems confront other counterstrategies. A coalition between the entrant and its rivals—such that each enters one of the predator's several markets—faces formidable transaction costs that hinder coordination of an entry strategy by multiple entrants into multiple markets, each subject to particular local conditions. In addition, coalition formation encounters a free rider problem because each member would prefer that others take the risk of entering the predator's markets. These risks include antitrust risks, since the coalition divides the entry markets between competitors. Moreover, enforceability is doubtful because an injunction compelling market entry is not feasible and damages appear to be highly speculative.

A similarly implausible counterstrategy is a threat and binding commitment by the prey to enter the predator's other markets, in response to the predator's low price in the prey's home market.[375] It is unclear how the entrant is to make such a credible commitment, other than by simultaneously entering both markets, which would then double its potential loss and difficulty in raising capital. Further, as Judge Easterbrook acknowledges, the predator can respond by making an equally binding commitment not to accede to the multiple entry counterstrategy.[376] Finally, if the predation is based on reputation effect—such as a firm's low-cost reputation—asymmetric information makes the counterstrategy doubly doubtful. If the prey is deceived or uncertain about the predator's costs in its home market, why would it know more about the predator's costs in other markets? Thus, the prey's threat to enter the predator's other markets, which would increase its investment and potential losses, would not be credible.

Customer stockpiling of a reduced-price product is an unlikely counterstrategy because if customers believe the predator's low price reflects a sustained cost breakthrough, or are unaware of the predatory strategy, they will expect prices to remain low and, therefore, not invest in unneeded inventory. Even if customers do recognize the price as predatory, they may lack storage facilities or the capital to support stockpiling. Additionally, customers will not know whether the price will fall further or how long the low price will endure. The same limitations apply to wholesale suppliers. Such intermediate suppliers, for whom the product may be but a small part of their operations, may be even less inclined to accumulate inventory on the speculation that the low price is predatory rather than cost-related.

Critics of strategic analysis assert that the "chain-store paradox" would cause multi-market predation strategies to unravel.[377] The basic idea is that in multi-

375. *See* Easterbrook, *supra* note 363, at 284-85.

376. *See id.* at 285.

377. *Id.* at 285-86. The chain-store paradox models predatory pricing by a supermarket chain that seeks to prevent entry into a fixed number of monopoly markets by threatening to cut prices. However, if entry were actually to occur, the chain would be better off to accommodate entry than to wage a price

market reputation effect predation it would not be rational for the predator to take losses in the last market the prey enters because at that point the predator has no future reputation to maintain, so the prey would not be deterred from entering the last market. By similar logic—called backward induction—the prey would come to the same conclusion in the next to last market, and indeed in all earlier markets. This logic is now questioned if there is no well-defined final period in which interaction takes place[378] or if the precise motive behind the predator's aggressive pricing is not perfectly known; and controlled experiments have failed to validate the conclusions of the theory.[379] For all these reasons, the counterstrategies objection is of limited plausibility and likely to be relevant only in very special cases.[380]

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war, and the would-be entrant knows this. Suppose the chain has a monopoly in 10 markets and faces possible sequential entry in each of those markets. If entry occurs in its tenth and last monopoly market, the chain will accommodate entry because it has no future price-cutting reputation to maintain. Now consider the ninth market. The entrant to the ninth market knows the chain cannot deter entry into the tenth market by cutting price in the ninth market since as we have just seen, the entrant certainly knows the chain will not cut prices in the tenth market. Therefore, entry occurs in the ninth market, and the same reasoning holds as to the eighth market and all earlier markets. Thus, under this analysis, predation cannot be deterred by threatened price cutting. *See* Janusz A. Ordover, *Predatory Pricing*, *in* 3 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 77, 79 (Peter Newman ed., 1998).

378. Indeed, in reputation predation, if the chain is of indefinite length, there is no last period or market where the predator has no future reputation to maintain. In every market or period, the predator has the same reputation to maintain; so, if it is rational to incur losses in any one period to maintain future reputation, it is always rational for the predator to incur these one-time losses. Note that indefinite length is *not* infinite length; it just means there is no defined last period or last market in which the interactions take place.

379. *See* Yun Joo Jung et al., *On the Existence of Predatory Pricing: An Experimental Study of Reputation and Entry Deterrence in the Chain-Store Game*, 25 RAND J. ECON. 72, 88-89 (1994); Richard McKelvey & Thomas Palfrey, *An Experimental Study of the Centipede Game*, 60 ECONOMETRICA 803, 805-06 (1992).

380. Judge Easterbrook also argues that mutual uncertainty between the predator and prey breaks down the predictiveness of strategic theories and prevents predation. But, this objection neglects the strategic power of commitment. Taking Judge Easterbrook's example, if the predator acts first, reducing its price to signal low costs, it has committed itself. The predator can only reverse its low price policy by revealing its own weakness—its high costs. Thus, the predator now has a greater incentive to maintain its low price in order to avoid becoming worse off than before it initiated the price cut. Under these conditions, the prey realizes it is futile to fight back unless its costs are low, because this would simply lead to a mutually destructive price war. Thus, given that the parties act sequentially, a signaling strategy may—under an initial state of mutual ignorance—be as effective, or even more effective against a high cost entrant as when the predator has an information advantage. On the other hand, when the prey truly has lower costs, a prolonged price war might benefit consumers.

John Lott also raises the mutual uncertainty objection, arguing that the entrant may have an informational advantage over the incumbent since it typically has private information on its own strategic intentions. Exploiting this advantage, a potential entrant that anticipates a costly predatory response by an incumbent can gain by shorting the incumbent's stock, and a predatory victim, if it plans to exit, can gain by buying the incumbent's stock. *See* LOTT, *supra* note 41, at 96-116. The gains the entrant can obtain through such stock trading would then tend to introduce a countervailing effect in standard strategic entry deterrence models. *See id.* However, there appear to be virtually no known instances of such stock speculation, and it remains unclear how important such an effect can be. Moreover, this strategy would apply to all private information held by a firm about its operations and business strategy.

B. ACQUISITION OF PREY'S ASSETS BY SUCCESSOR FIRM

Perhaps the most insistent critique of a predatory pricing strategy is that even if the prey is forced to exit, the predator has accomplished nothing because the prey's assets remain in the market. Indeed, the prey's assets are apt to be sold at a low price, meaning the successor will have to expend less capital for sunk costs than did the defeated prey. Thus, it is argued, the predator now faces a stronger rival than before. While it is possible to imagine a situation where this critique might be relevant, it seems implausible that new entry will generally be facilitated by exit of an existing firm for the following reasons.

First, the prey's sunk assets may be insufficient to achieve an efficient scale of operations, so the successor would not be viable without further financing to enable the necessary capital additions, even if the assets were transferred at zero price.[381] An example might be the Sacramento cable TV case, where the entrant's built-out facilities were probably not viable for a stand-alone cable competitor, due to pecuniary scale economies or bargaining power in purchasing programming.[382]

Second, as a separate but related point, acquisition of the prey's assets will yield little value to a successor firm in a network industry, where the predator's product has become predominant or the industry standard. A successor seeking to acquire the prey's assets would have to reverse that developed consumer preference, as well as perhaps assemble its own network of outlets and a specialized work force. This is unlikely to be an attractive investment after the industry has reached the tipping point—favoring the predator's product as the industry standard.

Third, the counterstrategy will not apply to fixed-cost assets without large sunk cost components—aircraft, ships, buses, and other mobile assets—where reputation and brand recognition are essential to local market success and are not available for purchase. For example, if a small airline is excluded from a local market, but remains in business elsewhere, it will not wish to sell its brand name and associated reputation. On the other hand, if the small airline is forced out of the industry entirely, what will its reputation and brand name be worth after it has suspended its flight schedule, frustrated consumers, and left ticket holders with subordinated bankruptcy claims in lieu of tickets? In such cases, the physical assets of the failing firm—for example, aircraft—may be offered for sale, but they may not be available at a reduced price since the assets are mobile and can be sold in a wider market—perhaps national or international in scope.[383]

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381. *See* Peter Chinloy, *Equity Pooling and Media Ownership*, 51 FED. COMM. L.J. 557, 559-60 (1999); Patricia Horn, *Cable TV Firm Adelphia Communications Makes Another Acquisition*, KNIGHT-RIDDER TRIBUNE BUS. NEWS, Apr. 13, 1999, *available in* 1999 WL 16642141.

382. *See* Patrick R. Parsons & Robert M. Frieden, THE CABLE AND SATELLITE TELEVISION INDUSTRIES 216 (1998); David H. Waterman & Andrew A. Weiss, VERTICAL INTEGRATION IN CABLE TELEVISION 119 (1997).

383. *See* Andy Chuter, *Used Lufthansa Jets to Go to Leasing Unit*, FLIGHT INT'L, Dec. 16, 1998,

Fourth, successful predation raises a reputational barrier to further entry and potential entry since the predator's prior conduct exhibits its predatory character to other market entrants. This in itself may deter an acquiring firm from exposing itself to what may now be perceived as a greater risk than the original entrant anticipated.

Fifth, closely related to the last point, the successor entrant may face a customer free rider problem. Customers, having once had their supply interrupted, may not wish to suffer the same inconvenience again before a successor is well established. In informational terms, customers receive new information from the demonstration of the incumbent's predatory conduct. The resulting uncertainty about the successor's duration causes the customers to reduce their estimates of the benefits of switching to the entrant for supply. For example, customers of a failed airline who have lost their frequent flyer miles may not wish to take a second chance with a newly established airline. Thus, customers, preferring to let other customers bear the risk of interrupted supply, may hold back from dealing with the successor. When a sufficient number of customers acts this way, the successor entrant never establishes the critical mass of customers necessary to support entry.

Sixth, acquiring the prey's assets does not apply to the firm that has the greatest incentive to acquire such assets—the predator itself. The prey's assets are likely to be worth more to the predator than to any other acquirer because the predator stands to gain market power, while other buyers can expect to earn only a competitive return in competition with the predator.[384] Certainly, predation followed by predator acquisition of the prey has happened in the past—as discussed above in the Wisconsin Telephone illustration.[385] But current examples also occur.[386]

While it might appear that the antitrust laws would bar predator acquisition of the prey, the failing company merger exemption may shield otherwise objectionable acquisitions.[387] The exemption overlooks competitive risks inherent in such acquisitions in order to protect the interests of creditors, employees, and other corporate constituents, provided a good faith effort has elicited no alternative offers presenting less anticompetitive risk and certain other conditions are

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available in 1998 WL 25279743; *One-on-One with Stuart Cauff, CEO of UniCapital Air Group*, 14 AIRLINE FIN. NEWS, Feb. 8, 1999, *available in* 1999 WL 6173653.

384. *See* Richard J. Gilbert & David M.G. Newbery, *Preemptive Patenting and the Persistence of Monopoly*, 72 AM. ECON. REV. 514 (1982).

385. *See supra* text accompanying notes 289-90; *see also* Burns, *supra* note 28 (price cutting by American Tobacco to force rivals to sell out to trust at low prices); *cf.* Granitz & Klein, *supra* note 33, at 36 (purchase of rivals weakened by predatory conduct at distressed prices).

386. In the Sacramento cable TV case, a prior entrant seeking to compete with the incumbent cable company was purchased by the incumbent as part of a settlement in a predatory pricing suit—the settlement also included a five-year noncompete clause. *See* Hazlett, *supra* note 238, at 616-17; *see also* Prestressed Concrete, Inc. v. Bladholm Bros. Culvert Co., 498 N.W.2d 274 (Minn. Ct. App. 1993) (purchase of predatory victim's assets in nonprice case).

387. *See* AREEDA ET AL., *supra* note 190, ¶¶ 951-54 (anticompetitive acquisitions permitted when acquired firm faces imminent or highly probable failure).

met.[388] To be sure, the antitrust agencies would have to be notified in advance of the acquisition[389] and the agencies would certainly not clear the acquisition if they were aware of the predatory conduct. But the agencies may not be aware. The merger of the failing company is entirely administrative, and it is unclear who would inform the government that the failing firm's plight was caused by predation. Surely not the predator, who would have no desire to scuttle the transaction. The prey itself is a consenting party—attempting to salvage what it can from a failed venture—so it would also lack incentive to reveal the predation. Indeed, the acquisition agreement would probably require the prey to release all claims against the predator. A competitor might complain, but no other competitor may exist, or existing competitors might welcome increased concentration, tacit collusion, and anticipated higher prices. Even if the government knows that the industry has sustained a price war, in the absence of complaint, it might simply conclude the market is highly competitive. Finally, acquisition of stock or assets of less than ten million dollars need not be reported at all.[390] Thus, acquisition of the victim by the predator is not an impossible outcome.

In a separate appendix we discuss a recent critique of predatory pricing that questions the credibility of predatory pricing because the managers of publicly held corporations lack incentive to engage in predation. While the critique is novel, we do not find it persuasive.

CONCLUSION

Predatory pricing policy is deliberately under-inclusive, for understandable reasons. Until recently, economists had no rigorous explanation of how predatory pricing might be rational business conduct. Courts applying a populist approach during an earlier era of expansive antitrust enforcement sometimes condemned conduct that was doubtlessly competitive. Following Areeda-Turner's 1975 critique of that policy, the courts fell back on the economics that was known—static analysis in a world of assumed perfect information. Accordingly, courts in the late 1970s and early 1980s adopted a short-run pricing rule that was deliberately under-inclusive of predation. These under-inclusive tendencies became more acute following the Supreme Court's *Brooke* decision, which, as applied by the lower courts, has become virtually a per se rule of non-liability. Yet, *Brooke* itself, with its emphasis on close analysis of the scheme of predation and recoupment, identified the key elements needed for a more balanced approach.

Advances in economic theory over the last twenty years provide the tools to

388. *See* International Shoe Co. v. FTC, 280 U.S. 291 (1930); *see also* Horizontal Merger Guidelines, 57 Fed. Reg. 41,552 (1992). *See generally* AREEDA ET AL., *supra* note 190.

389. *See* Hart-Scott-Rodino Antitrust Improvements Act of 1976 § 201, 15 U.S.C. § 18a.

390. *See id.* § 18a(2)(A).

conduct the close analysis that *Brooke* and other recent Supreme Court decisions have called for. Economists can now explain when predatory pricing can be rational or, in *Brooke's* terms, when it can enable profitable recoupment, casting new light on earlier examples of alleged predatory pricing. These developments challenge legal policy to produce workable rules to guide enforcement agencies and the courts. Toward this goal, this article has proposed a structured rule of reason that would focus enforcement on cases where economic conditions make predation strongly plausible and where market conduct makes anticompetitive effects dangerously probable. At the same time, the proposed approach includes a fully specified efficiencies defense that would constrain enforcement when below-cost pricing is necessary to achieve significant efficiencies—including dynamic efficiencies. Such an approach offers the most effective means to achieve a balanced predatory pricing policy and to protect competition in a world of increasingly complex business transactions and strategies.

APPENDIX: MANAGERIAL INCENTIVE TO PREY

In a recently published critique of strategic analysis—which does not rest on an assumed world of perfect information—John Lott questions the credibility of predatory actions by large, widely held corporations when their managers do not have any apparent financial incentive to engage in predation.[391] Lott is concerned that managers' compensation may be primarily a function of short-run profit, in which case they may not be willing to incur predatory losses. In practice, however, managerial compensation packages are designed to align managers' objectives with those of shareholders. Compensation packages typically contain a fixed salary component, a percentage of short-run profits, and participation in the firm's stock through stock option plans.[392]

While managerial incentives may be a relevant consideration in assessing the plausibility of a predatory action by widely held firms, it does not follow—as Lott claims—that all modern strategic theories of predation are flawed because they fail to consider managerial incentives.[393] At best, his evidence casts doubt on existing theories of entry prevention that rely on an explicit commitment to reward managers for keeping entrants out—or punishing them should entry

391. *See* LOTT, *supra* note 41, ch. 2.

392. This type of contract is now standard for executive compensation. Lower level managers also increasingly have similar compensation packages, but the lower down the hierarchy one goes, the more implicit incentives in the form of promotion or bonuses matter. *See, e.g.*, PAUL MILGROM & JOHN ROBERTS, ECONOMICS, ORGANIZATION AND MANAGEMENT ch. 10 (1992).

393. Nowadays, managerial incentives are unlikely to be a critical issue since most publicly traded firms do have compensation packages in place that are designed to align their objectives with those of shareholders. Admittedly, in Lott's empirical work this issue may be more important as his sample includes a large proportion of observations from the pre-1975 "populist" antitrust enforcement era—a time when managerial incentive compensation was primitive. *See* LOTT, *supra* note 41, at 29-30.

occur.[394] Besides the lack of evidence supporting these theories—as revealed in Lott's empirical research—there are also theoretical difficulties, relating to the lack of commitment power of such contracts—when shareholders and managers can easily change the contract following entry, which cast doubt on their plausibility. This is why these entry prevention theories are not discussed in this Article.

Apart from these theories of entry prevention, which rely on the existence of explicit managerial contracts to engage in predatory pricing, all of the strategic theories discussed in this article—including reputation effect theories—are immune from the Lott critique. Indeed, these theories only require that managers act in the interest of the shareholders. If the managerial incentive package aligns the manager's interest with those of the shareholders, there is no longer a meaningful distinction to be drawn between managers and shareholders. Predatory strategies can then be considered solely from the viewpoint of the shareholders' interests. Thus, as long as there is no clear evidence that managers' financial interests—as well as their other implicit and explicit incentives—are not in line with those of shareholders, there is no reason to be concerned that managers may not want to execute a strategy that is in their shareholders' interest.[395]

Even over the sample period considered by Lott, it is not possible to find any statistically significant evidence that managers' objectives in firms that are found to engage in predatory pricing were inconsistent with those of shareholders. Lott's primary statistically significant finding is simply that the sensitivity of managers' compensation to short-run profits, in firms that were found guilty of predation, was slightly higher than in a sample of firms that were found not to have engaged in predatory pricing. That is *not* the same as saying that managers in those firms had no interest in pursuing a predatory strategy.[396]

394. *See* Giacomo Bonanno & John Vickers, *Vertical Separation*, 36 J. INDUS. ECON. 257 (1988); Chaim Fershtman & Kenneth L. Judd, *Equilibrium Incentives in Oligopoly*, 77 AM. ECON. REV. 927 (1987).

395. Even if managers' explicit financial interests do not appear to be in line with those of shareholders, managers' overall objectives—taking into account implicit and explicit incentives—may still be. As is often stressed in the managerial compensation literature, a large fraction of managerial incentives is implicit. Therefore, a calculation based only on explicit contractual compensation could be highly misleading. *See, e.g.*, MILGROM & ROBERTS, *supra* note 392, ch. 10.

396. *See* David E. M. Sappington & J. Gregory Sidak, *Are Public Enterprises the Only Credible Predators?*, 67 U. CHI. L. REV. 271, 276-81 (2000) (reviewing Lott's book with similar and additional criticism and reservations).