

Recoupment and Predatory Pricing Analysis

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Abstract

Recoupment inquiries play an increasingly important role in antitrust analysis, yet they raise a number of conundrums: How can a failure of recoupment due to the plausible long-run profit recovery being dwarfed by short-run losses be reconciled with a defense of no predation that presupposes no short-run sacrifice to begin with? How can recoupment inquiries be diagnostic with respect to important competing explanations for defendants' behavior—such as product promotion or “legal” predation—that likewise require recoupment? Does a recoupment requirement define, augment, or replace the preexisting monopoly power requirement that involves similar analysis? This article addresses these questions and others by grounding recoupment, and predatory pricing analysis more broadly, in a decision framework that focuses on classification (distinguishing illegal predation from other explanations for firms' pricing) and on the magnitudes of the deterrence benefits and chilling costs of imposing liability. Regarding the latter, although concerns for the chilling of legal activity sensibly drive predatory pricing analysis, the great variation in chilling costs across competing explanations for alleged predation is unrecognized. Attention also needs to be directed to whether and when it is sensible to punish failed attempts (which some predation cases may involve) and how existing and proposed structured decision rules can distort information-gathering and analysis through the sequential siloing of interdependent subjects (such as in seeking to assess an anticompetitive hypothesis without identifying any competing hypothesis and in purporting to determine recoupment without inquiring into cost when cost is a key input to the recoupment condition). Much of the analysis here is not particular to recoupment; the investigation aims to inform future research and policy regarding many aspects of predatory pricing as well as other forms of anticompetitive conduct.

KEYWORDS: predatory pricing; recoupment; antitrust; competition policy; market power

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TABLE OF CONTENTS

- I. Framework and Application
 - A. Decision Framework
 - B. Recoupment Condition
 - C. Triangulation
 - D. Error Costs

- II. Competing Explanations
 - A. Procompetitive Investments
 - B. Accommodation of Rivals
 - C. Legal Predation
 - D. Other Explanations
 - E. False Positives Are Not Created Equal

- III. Market Power
 - A. Analytical Relationship Between Market Power and Recoupment
 - B. Market Power's Relevance in Other Ways

- IV. Future Directions in Predatory Pricing Analysis
 - A. Modern Economics of Predatory Pricing
 - B. Dictating Conduct versus Providing Incentives
 - C. Ex Ante versus Ex Post Perspectives on Recoupment

- V. Doctrine and Legal Institutions
 - A. Doctrinal Development
 - B. Structured Decision Rules
 - C. Legal Institutions and Screening

- VI. Conclusion

The concept of recoupment is simple: if firms are presumed to undertake predation to enhance their profits, then a firm that indeed engaged in predation must have expected that the short-run profit sacrifice (from dropping its price to drive out or discipline rivals) would generate a sufficient long-run profit recovery (when it later became able to charge high prices) to render the overall strategy profitable. Restated as the contrapositive: if the firm would have expected its long-run profit enhancement to be insufficient, then it must not have engaged in predation. This inference has become part of U.S. antitrust law on predatory pricing and is most associated with the Supreme Court’s decision in *Brooke Group*.¹ Yet the relationship between predation and recoupment poses serious challenges, some of which are occasionally noticed but have not been resolved and others that have remained hidden.

A first point to note is that the connection between predatory pricing and recoupment has nothing in particular to do with predation. If everything a firm does—from hiring employees to building facilities to marketing products—is assumed to be motivated by profit-maximization, then it follows that the firm expects to recover the costs of its actions, one way or another. Therefore, recoupment applies as well to any allegedly anticompetitive conduct that is costly to undertake. Moreover, recoupment logic applies to all benign, procompetitive explanations for costly conduct, including allegedly predatory actions that are not actually so. Firms do not profit-maximize only when they engage in predation.

It is not surprising that economic analysis of exclusionary strategies has long examined their profitability through what is akin to a recoupment condition² and understood recoupment to be central to predatory pricing analysis in particular.³ And even without drawing explicitly on the economics literature, long before any Supreme Court cases explicitly embraced recoupment it was always open to parties to present evidence relating to whether an alleged action could be expected to be profitable and hence plausible. One need not master rocket science to argue: “Don’t believe their allegation that we were trying to do X. That strategy would have lost us millions. We’re not stupid!” It is not immediately obvious what announcement of the necessity for recoupment adds, except to remind parties that common sense arguments are welcome.

¹*Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993). On the doctrinal development in the United States, see section V.A. On the different state of the law in the European Union, where recoupment analysis can be relevant but there is no recoupment requirement as such, see note 176.

²See, e.g., Janusz A. Ordover & Garth Saloner, *Predation, Monopolization, and Antitrust*, in 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 537, 552–53 (Richard Schmalensee & Robert Willig eds., 1989); sources cited *infra* note 7. It is generally referred to as an individual rationality constraint, meaning that, for an act to be undertaken, it must be rational for the individual undertaking it—and the individual actor is taken to be a profit-maximizer.

³See, e.g., Kenneth G. Elzinga & David E. Mills, *Testing for Predation: Is Recoupment Feasible?*, 34 Antitrust Bull. 869, 870 (1989) (“This insight [that predatory pricing is attractive to a profit-seeking firm only where it expects to recoup] is familiar in the literature on predation.”); Paul L. Joskow & Alvin K. Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L.J. 213, 217 (1979) (“In designing a policy toward predatory pricing, . . . an assessment [of long-run considerations] is required because the essence of predatory pricing is the alleged predator’s sacrifice of short-run gains for greater long-run gains.”); Janusz A. Ordover & Robert D. Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L.J. 8, 13 (1981) (“Thus, the relevant structural test is whether the conceivable gains from predation can outweigh the costs to the incumbent of the allegedly predatory conduct. If not, there can be no motive for predation and it is unnecessary to scrutinize allegedly predatory conduct for anticompetitive effect or intent.”); see also Joskow & Klevorick, *supra*, at 222–23 (“Since a profit-maximizing dominant firm will depart from short-run maximizing behavior only if it expects that such a move will lead to larger long-run profits, the best way to assess whether current behavior is predatory is to evaluate its expected effects on long-run market outcomes.”).

The core logic of the recoupment concept also raises a number of questions. First, granting the contrapositive—that the lack of a plausible expectation of recoupment negates an explanation that presupposes recoupment—the original proposition remains: an affirmative demonstration of predation itself implies an expectation of recoupment. And those advancing predatory pricing allegations have always had to prove their case. So why isn't any recoupment requirement automatically satisfied if a case is otherwise sufficient?

Next, revisit the point that the profit-maximization assumption applies not just to predatory pricing but to anything that a firm is imagined to do. If a defendant claims that its pricing was not predatory, then it must be explained by some other strategy, and that strategy likewise must be *ex ante* profitable to be plausible. Moreover, some alternative explanations that defendants offer for their allegedly predatory activity (charging low initial prices to promote a new product) entail a short-run profit sacrifice, so recoupment logic applies to them as well. How does testing for recoupment help to distinguish between two competing explanations that both require recoupment?

Instead, a defendant may claim that its pricing did not involve any short-run profit sacrifice. That is, its pricing merely accommodated rivals in the sense that it was charging the short-run profit-maximizing price (rather than a lower one, for purposes of driving rivals out of the market). In that event, there is nothing that needs to be recouped, so an inability to expect any significant long-run profit recovery is consistent with this characterization but not with predation. However, if recoupment is thought to fail because the demonstrated prospect of some long-run profit recovery is insufficient to compensate for the larger short-run profit sacrifice, then how can it be that the defendant's pricing merely accommodated rivals, which, by definition, means that there was no short-run sacrifice whatsoever? Is it that, contrary to the insistence that alleged predators are to be understood as rational profit maximizers, we are to imagine instead that the alleged predator intentionally sacrificed short-run profits in a giveaway to consumers, with no intention of ever recovering its losses?

It is also natural to wonder about the relationship between the presence of significant market power and recoupment. After all, antitrust challenges under Sherman Act Section 2, where many predatory pricing cases fall, require proof of monopoly power or a dangerous probability thereof. In addition, inquiries into monopoly power and recoupment examine similar factors in similar ways. Furthermore, antitrust scrutiny of particular cases is conventionally understood to begin with the monopoly power requirement, so one might have thought that, when the predatory pricing inquiry is reached, significant recoupment would in essence have already been established. How do the monopoly power and recoupment requirements relate to each other? Does the latter refine, augment, or replace the former? If it supplants, did *Brooke Group* implicitly reverse decades of precedent, including one of the cases the Court decided just months before and cited in support of its decision?

These questions suggest that recoupment—in particular, how it fits in with the broader inference process and how it relates to other aspects of predatory pricing analysis—is woefully underexplored. This article presents a ground-up analysis. As we will see, a number of additional dimensions of recoupment are thereby revealed, and the broader matter of how best to conduct inquiries in predatory pricing (and other) cases is illuminated as well, which should not be surprising since one can only make sense of recoupment by integrating it with the rest of the inquiry rather than examining it in isolation, as has often been done. (As a note to the reader before proceeding, throughout this article “recoupment” is used to refer only to the adequacy of

expected⁴ profit recovery conditional on a defendant's strategy otherwise being successful.⁵)

Part I presents the basic framework and takes an initial pass at its application. It begins with an explicit articulation of the decision problem. Although generic and familiar in rough terms, this template nevertheless aids in the identification and examination of many unappreciated aspects of recoupment. A central feature of this framework is that both anti- and procompetitive explanations for alleged predation need to be specified up front. The failure of much existing practice to do so helps to explain why so many of the angles examined here have been overlooked.

Part I next states and interprets the recoupment condition itself. Remarkably, despite all that has been written on the subject, this simple step is almost never taken, with the result that much thinking about recoupment has gone awry. For example, many believe that recoupment is often easier to assess than is an alleged predator's cost structure, failing to appreciate that the firm's costs enter the recoupment condition in a number of ways—including the need to determine the incremental cost of producing the alleged predatory quantity increase.

These foundations are then used to examine how one should analyze evidence on recoupment and on other aspects of alleged predation to triangulate on the proper characterization of the defendant's action. At this point, it is assumed that the pertinent competing explanation is that the allegedly predatory pricing involved an accommodation of rivals with no short-run profit sacrifice. If a party challenging a defendant's pricing is unable to offer affirmative proof of predation, its case fails, and this is so without regard to whether recoupment can be demonstrated. Therefore, recoupment analysis can change the outcome only when there is significant proof of successful predation, but other evidence indicates that the recoupment condition fails. This juxtaposition highlights a tension: on one hand, demonstration of predation itself implies recoupment (rendering the inquiry unnecessary), but, on the other hand, failure of the recoupment condition contradicts predation. Elaboration of the triangulation process illuminates how this tension should be resolved. The discussion also reinforces the intuition that sometimes recoupment can be a useful screen in cases in which the condition obviously fails.

Part I concludes by addressing how recoupment may bear not only on the classification of alleged predatory pricing as anti- or procompetitive but also on the magnitudes of concomitant effects. If the potential profit recovery is likely to be small, the anticompetitive harm of predation is likewise limited. On the other hand, conditions un conducive to substantial profit recovery (such as easy entry) also tend to reduce the social costs of chilling alleged predation that really involves competitive accommodation.

Part II expands the inquiry by examining a variety of competing explanations for a

⁴As will be explored in section IV.C (with some preliminary excursions in section II.D), there is a question of whether the recoupment requirement should be understood to refer to an alleged predator's (actual or imputed reasonable) expectations of sufficient profit recovery and/or whether recoupment (ex post) actually occurred. For most purposes, it clarifies the exposition and thinking to focus on the former, ex ante perspective (which directly relates to the logic of profit-maximizing behavior). But to avoid repetitive verbiage, sometimes the requisite reminders will be omitted.

⁵Accordingly, the term as used here does not also encompass the requirement—stated in *Brooke Group*, 509 U.S. at 224–26, and followed by some subsequent courts and commentators—that the predator's strategy be one that would successfully eliminate or otherwise discipline the target. Yet another ambiguity, "recoupment" is sometimes used to refer to the condition as a whole (that the expected recovery exceed the expected sacrifice) and sometimes just to the expected recovery (as in referring to the amount that will be "recouped," suspending the question of whether that amount will be sufficient to "recoup" the short-run sacrifice). Efforts will be made in language usage to avoid ambiguity.

defendant's allegedly predatory pricing. Because recoupment analysis aims to help determine whether predatory pricing actually occurred, it is important to ask how that analysis might depend on the nature of the competing hypothesis. First, the part considers the possibility that allegedly predatory pricing is instead a procompetitive investment, such as in product promotion or moving down a learning curve so as to reduce future costs. In such cases, satisfaction of the recoupment condition is not diagnostic in any straightforward fashion because these competing explanations likewise presuppose recoupment. Second, the strategy of accommodation of rivals is revisited. Recoupment fails when the expected long-run profit recovery is less than the short-term profit sacrifice, but the very presence of a short-run profit sacrifice directly rules out accommodation. Therefore, in this core situation, the diagnosticity of recoupment analysis is notably more subtle than is generally appreciated. Third, claims of illegal predation are matched against the competing explanation of legal predation, a possibility generated by rules—such as many cost-based tests—that contemplate scenarios in which some actual predation in an economic sense is legally immune. Because legal and illegal predation each involve short-term profit sacrifice, whether and how recoupment analysis may be diagnostic are rather refined inquiries.

Part II then considers other explanations that are sometimes implicit in recoupment analysis (for example, in *Brooke Group* itself): particularly, that an alleged predator may have been attempting predation when that strategy could not have been expected to be profitable. This competing explanation complexifies or contradicts the profit-maximization assumption that motivates the recoupment inquiry in the first place. Analysis of this sort of explanation proves to be quite subtle—once one rules out the occasionally advanced suggestion that firms may sometimes be implicitly acting as Santas who are willfully transferring to consumers current profits that they have no expectation of recovering.

Finally, part II returns to the question of the magnitudes of the impact of liability decisions: specifically, the size of the social loss associated with false positives. On one hand, the concern that mistaken assignments of liability may chill beneficial conduct drives much of the argument over predatory pricing rules and how predatory pricing cases should be handled, including with respect to recoupment. On the other hand, not all false positives are created equal, and it turns out that some types involve less social cost than meets the eye and others may even involve social gains (which is to say that the some false positives are desirable, a result that should not be surprising when decision rules are designed as conservative proxies for harmful conduct). As a consequence, the optimal degree of caution in assigning liability in predatory pricing cases depends significantly on which competing explanation is in play.

Part III examines recoupment and market power in light of the aforementioned monopoly power requirement and the apparent overlap in the two sorts of analysis. The primary focus is on the analytical relationship between the two concepts. Direct attention to the components of the recoupment condition reveals some concordance but also critical differences. Indeed, a conventional application of the monopoly power requirement, particularly in attempts cases, can lead to rejection of challenges for reasons that actually favor liability because they imply greater anticompetitive effects that generate more long-run profit recovery. It is also suggested that, despite similarities in factors and analysis, market power is not a very helpful concept for recoupment analysis, which is best conducted directly (if at all)—that is, without the “middle-man” of market power. To round out the discussion, part III considers how market power may be relevant to optimal liability determinations in ways unrelated to recoupment.

Part IV steps back to consider predatory pricing analysis more broadly: both the

formulation of rules and their application in particular cases. It begins by discussing the theoretical and empirical economics literature on predatory pricing, which as others have noted seems to have had little effect on modern doctrinal developments despite some appearances to the contrary. Then it considers an underanalyzed aspect of optimal liability determination that is of central relevance in predatory pricing cases (and in some other antitrust settings): Most decision theoretic thinking in antitrust uses decision analysis whereas the correct perspective in the present context attends instead to how legal rules influence actors' ex ante incentives. Because predatory pricing enforcement is centrally concerned with the creation of deterrence and the side-effect of chilling rather than with dictating defendants' subsequent conduct, the manner in which analysis should be performed requires some important amendments.

Part IV then elaborates the difference between ex ante and ex post perspectives on whether the recoupment condition is satisfied. Cases and commentary are aware of the difference between inquiry into whether alleged predation should have been regarded as profitable at the time the strategy was undertaken and whether it turned out to be so after the fact. However, insufficient attention has been given to how cases should be resolved when these two recoupment inquiries seem to yield conflicting answers. In particular, ex ante profitability followed by ex post failure raises the question of whether it is optimal in this context to punish failed attempts. The lack of explicit attention to this matter is surprising given its importance and Sherman Act Section 2's explicit coverage of attempted monopolization.

This article is primarily concerned with how analysis of predation should in principle be conducted, with particular attention to how recoupment fits into the picture. Part V briefly considers antitrust doctrine. First, it reexamines doctrinal development with regard to the recoupment requirement (with particular attention to its relationship to the monopoly power requirement), which is cast in a somewhat different light by the foregoing analytical enterprise. Second, it addresses structured decision rules that have achieved some traction with courts and commentators, in particular with respect to predatory pricing, including recoupment. These structures are contrary to the logical inference process developed throughout this article. Their tendency to silo analysis—notably, by separately treating monopoly power, whether the prices charged were predatory, recoupment, and procompetitive explanations—disrupts sensible information gathering, analysis, and decision-making and helps to explain many of the oversights and missteps that are revealed herein. Notably, many of this article's insights derive from the side-by-side comparison of anti- and procompetitive explanations, which is undermined when following such protocols. Finally this part considers legal institutions, including their limitations, and also revisits the role that recoupment analysis can play in screening weak cases.

Much of the present analysis is not distinctive to recoupment or even to predatory pricing more broadly. In most areas of antitrust, it is necessary to articulate competing explanations for alleged anticompetitive conduct in order to be able to distinguish them, attend to the variation in the magnitudes of anticompetitive harm and chilling costs that are central to the optimal determination of liability in the presence of uncertainty, and to recognize the interdependencies among often-siloed parts of the analysis. This investigation should therefore help identify fruitful directions for research, inform policy-making, and guide the investigation and resolution of particular disputes regarding a wide range of potentially anticompetitive practices.

I. Framework and Application

A. Decision Framework

Recoupment analysis is largely a derivative inquiry.⁶ Recoupment is regarded to be of interest primarily because of the light it may cast on the desirability of assigning liability in cases of allegedly predatory pricing in cases in which there is uncertainty about what transpired.⁷ Accordingly, the first step in assessing recoupment is to state explicitly the appropriate framework for determining when liability is optimal.

The central benefit of liability in cases of alleged predatory pricing is that the expectation thereof deters harmful, anticompetitive behavior. The main cost is that the prospect of mistaken liability chills desirable, procompetitive conduct. When considering whether liability should be assigned in some subclass of cases—perhaps ones that are otherwise strong but have an uncertain demonstration with respect to recoupment—the question is whether the expected deterrence gains exceed the expected chilling costs.⁸

As a heuristic, it is useful to decompose this question into three components: classification (the relative likelihood that an act under scrutiny is predatory versus benign), the magnitude of harm averted if indeed the act is anticompetitive, and the magnitude of benefit forgone if instead the act is procompetitive.⁹ Regarding recoupment, most attention has been devoted to classification, which will also be the primary focus in this article, although recoupment can also bear importantly on both of the two magnitudes, in the manner explored in section D of this part and in section II.E. Nor is this latter set of inquiries a mere detail, because both magnitudes can vary tremendously across contexts (and, indeed, some false positives are actually beneficial); hence, analysis of predation rules or particular predation cases should not be

⁶Some discussions of recoupment take it to be more central. *See infra* sections I.D & II.D (addressing the notion that whether pricing behavior is net undesirable from an antitrust perspective depends on whether there is recoupment). In such instances, the channel of relevance concerns the magnitudes of the impact of a firm's pricing over time, which, as suggested in this section and throughout this article, is properly understood as important in determining whether liability is optimal but remains only an aspect of the full inquiry.

⁷As the introduction mentions, recoupment is in principle relevant, sometimes in similar ways, to a broad array of antitrust (and other) issues because the core logic—that the implausibility of recoupment casts doubt on the plausibility of strategies that are costly in the short run—is generic. In particular, economists have long considered recoupment with respect to the examination of exclusionary practices. *See, e.g.,* Ordover & Saloner, *supra* note 2, at 552–53; Steven C. Salop & David T. Scheffman, *Cost-Raising Strategies*, 36 J. INDUS. ECON. 19, 22–23 (1987) [hereinafter Salop & Scheffman, *Cost-Raising Strategies*] (examining the conditions under which raising rivals' costs strategies would be profitable for a dominant firm); Steven C. Salop & David T. Scheffman, *Raising Rivals' Costs*, 73 AM. ECON. REV. PAP. & PROC. 267, 268–70 (1983) [hereinafter, Salop & Scheffman, *Raising Rivals' Costs*] (same); David Scharfstein, *A Policy to Prevent Rational Test-Marketing Predation*, 15 RAND J. ECON. 229, 230 (1984) (“If the greater profits from retaining the monopoly exceed the costs, predation—charging a test-market price below the duopoly level—will be the rational strategy of the incumbent.”).

⁸This formulation abstracts from administrative costs. As will become apparent, proper recoupment analysis, along with many other features of the broader inquiry into predation, is likely to be even more costly than the high levels normally assumed because of the strong information demands and complexity of the analysis.

⁹This breakdown is a heuristic device rather than a full restatement of the optimality condition because there are likely to be different probabilities associated with different magnitudes for each of the two types of acts. Splitting each branch into a probability and a (conditional) magnitude, and then taking the two probabilities as a single, relative inquiry aids thinking and eases exposition.

confined to classification.¹⁰

Before proceeding, it is useful to elaborate on the challenge of classification.¹¹ The most important point—both obvious and often neglected—is that it is necessary to articulate with some specificity the classes that are to be distinguished. The reason is that evidence on classification is of a relative nature.¹² In the simple case of two mutually exclusive explanations, it is simply impossible for evidence to bear on the probability of only one of them. More broadly, it is necessary to examine whether evidence—regarding recoupment or anything else—is more favorable to one hypothesis versus the other. Otherwise, one can be led badly astray. For example, if a patient has either bronchitis or pneumonia, a test result that seems questionable regarding bronchitis might nevertheless heavily favor that diagnosis if it almost surely rules out pneumonia.¹³

A disciplined inquiry requires nontrivial specificity in order to know what information to gather and how it should be assessed. For simplicity, the exposition in this article usually considers cases with only two possible explanations. As will emerge, describing them as predation versus no predation, or as anticompetitive versus procompetitive, is insufficient. For anticompetitive predation, different theories have different implications for the evidence that would likely emerge and for how it should be interpreted. For alternative explanations to illegal predation, the possibilities vary greatly, enough to be the subject of the entirety of part II. Until then, the benign explanation for alleged predation will be taken to be that the defendant's pricing was not in fact predatory but rather involved mere accommodation of rivals: pricing that maximized short-run profits on the assumption that pertinent rivals would remain in the market and would not in any sense be disciplined by the defendant's pricing (although they will in general be influenced by it). As we will see in section II.B, this statement is oversimplified.

¹⁰This limitation of basing liability entirely on probabilities (such as is done under a preponderance of the evidence rule applied to classification) is quite general. See Louis Kaplow, *Burden of Proof*, 121 YALE L.J. 738, 781–86 (2012) [hereinafter Kaplow, *Burden of Proof*]; Louis Kaplow, *Likelihood Ratio Tests and Legal Decision Rules*, 16 AM. L. & ECON. REV. 1, 16–20 (2014) [hereinafter Kaplow, *Likelihood Ratio Tests*]; see also C. Frederick Beckner III & Steven C. Salop, *Decision Theory and Antitrust Rules*, 67 ANTITRUST L.J. 41, 61–62 (1999) (observing, in an article on the application to antitrust decision-making, that “More generally, the standard [of expected error-cost minimization] depends crucially on the magnitudes of potential benefits and harms, not simply the likelihood of benefit or harm.”).

¹¹As will be explored in section IV.B, the concept of classification is itself an oversimplification in the relevant domain: the familiar classification formulation is relevant to decisions involving treatment that has direct future consequences on the treated party, whereas the central concern with predatory pricing is with ex ante incentives (deterrence and chilling) that are generated by the prospect of sanctions. The relevant concept is not classification but rather the relative deterrence and chilling effects generated by liability (both of which, as will be explained, depend on the likelihood ratio concept that underlies the exposition in the text that follows).

¹²It is often suggested that antitrust analysis should proceed sequentially: first, articulating and assessing an anticompetitive explanation, and then (if and only if some threshold determination has been made), identifying and assessing a procompetitive explanation. See *infra* section V.B. This approach—which, contrary to the prescription in the text, begins with only a single hypothesis and attempts to assess its likelihood—is illogical at a fundamental level. A formal restatement of the problem is that the strength of classification evidence, say, for Bayesian updating, is captured by what is referred to as the likelihood ratio—the ratio of the probability that the evidence would have been generated by the harmful sort of act to the probability that the evidence would have been generated by the benign sort—and it is impossible to state a ratio without regard to its denominator. See Kaplow, *Likelihood Ratio Tests*, *supra* note 10; *infra* section IV.B.

¹³More generally, there may be additional explanations (perhaps some sort of lung cancer), but even then it is important to specify what they are and to consider how the evidence bears relatively on the different possibilities.

B. Recoupment Condition

Consider the following expression—implicitly, in the confines of a simple model, the features of which will become apparent—of the statement that, in order for a predatory strategy to be profitable, the anticipated short-run profit sacrifice must be less than the discounted present value¹⁴ of the expected boost to future profits:¹⁵

$$\delta^{pred} (\pi^{accom} - \pi^{pred}) < \delta^{monop} (\pi^{monop} - \pi^{accom}).$$

On the left side is the anticipated short-run profit sacrifice. The parenthetical term is the difference between the (expected) profits under a strategy of accommodation, π^{accom} , and under a strategy of predation, π^{pred} , each of which may be understood as corresponding to some common unit of time. This term is weighted by the factor δ^{pred} , which might be interpreted as the (expected) duration of the predation period.

On the right side is the expected long-run profit recovery (the amount recouped). The parenthetical term here is the difference between the (expected) profits when such a strategy has succeeded, π^{monop} , and under a strategy of accommodation, π^{accom} , which increment is the per period (in the same units of time as used on the left side) enhancement in profits due to predation. (The use of the term monopoly, with “monop” as the shorthand superscript, is for expositional convenience, it being understood that in general we are imagining a less competitive scenario than that under accommodation.) This latter term is weighted by the factor δ^{monop} , which incorporates a number of ingredients: a discount rate (the factor is lower if the firm more heavily discounts the future or if the recovery period does not commence for a longer period of time), a probability of success (the factor is higher when the probability is greater), the duration of success (the factor is higher when the enhancement is expected to last longer), and the breadth of impact (the factor is higher when a reputation will be established in more markets).

Although subsequent references will refer to the foregoing expression, it may aid intuition to consider as well an alternative version involving a rearrangement of terms:

$$\pi^{accom} < \left(\frac{\delta^{pred}}{\delta^{pred} + \delta^{monop}} \right) \pi^{pred} + \left(\frac{\delta^{monop}}{\delta^{pred} + \delta^{monop}} \right) \pi^{monop}.$$

This equivalent statement holds that the per-period profits from accommodation must be exceeded by a weighted average¹⁶ of the per-period profits when engaging in predation (which we might imagine to be negative) and the per-period profits from success. Higher accommodation profits disfavor predation, whereas higher profits (perhaps smaller losses) during the period of predation or upon success favor the strategy.

A remarkable feature of most writing on recoupment, whether by courts, agencies, or commentators, is that little systematic attention has been given to the components of this basic

¹⁴In most of the exposition to follow, reference to discounting, expectations, and other features will be omitted, and may be taken to be implicit (so, for example, references to the magnitude of the future profit recovery can be interpreted as its expected present value).

¹⁵See, e.g., Ordovery & Saloner, *supra* note 2, at 552–53. This expression and the corresponding simple model are restrictive (in failing to explicitly represent, for example, uncertainty about the degree of success and changes over time in what profits would be obtained both under accommodation and in the event of success), but it will be apparent that the main insights that will be drawn are fairly general.

¹⁶Note that the two weights sum to one.

condition. As will be discussed at various points in this article, many statements regarding recoupment are misleading or incorrect when one reflects on what the condition actually states. Perhaps the most common fallacy is the implicit supposition that one often can assess whether the condition holds in settings in which the expected long-run profit recovery (the right side in the first version) is nontrivial (for example, even if entry is not difficult, it may not be instantaneous or sufficient to erode π^{monop} entirely)¹⁷ without estimating the magnitude of the anticipated short-run profit sacrifice (the left side in the first version). Many also imagine that recoupment can be determined without inquiring into the alleged predator's costs even though, as will now be explained, they are a central determinant of the magnitudes of both sides of the recoupment condition.

Let us begin with the left side, the anticipated short-run profit sacrifice. In the parentheses, we have two profit terms, π^{accom} and π^{pred} . Each profit term is the difference between the pertinent revenues and costs. Revenues, in turn, are the product of a price and a quantity (taking the simple case of a single, fungible product sold at a uniform price). Therefore, for each profit term, we need to know the corresponding price, quantity, and costs (which will depend on the quantity).¹⁸

For profits under accommodation, π^{accom} , we immediately confront the challenge that none of these components is observable. To elaborate, if we are attempting to test the hypothesis that what happened is predation, then by assumption accommodation did not occur. Accordingly, whatever might be directly observed (or determined through a detailed investigation) with respect to what actually occurred, that will not answer the question of what would have been the price, quantity, and resulting cost if instead the alleged predator had undertaken a strategy of accommodation.¹⁹

Sometimes this difficulty is sidestepped by essentially treating the price and quantity

¹⁷Cf. Christopher R. Leslie, *Predatory Pricing and Recoupment*, 113 COLUM. L. REV. 1695, 1714–18 (2013) (criticizing courts' tendency to believe that entry is much easier than it often is in practice). Note further that, under established doctrine in Sherman Act Section 2 cases, one does not confront the recoupment condition unless monopoly power (or, for attempted monopolization cases, a dangerous probability thereof) has been established, a setting in which truly negligible profit recovery would ordinarily seem to have been ruled out. See *infra* section V.A. Also, assessments of future entry often toggle inconsistently with whether post-predation prices will be significantly elevated (which is to say, conjectures of rapid and substantial entry often presuppose significant price elevation rather than its absence). These observations are merely meant to suggest that the confident conjecture of negligible profit recovery—which would render unnecessary estimation of the short-run profit sacrifice—is often inconsistent with other features of serious cases. Of course, unserious cases need to be screened out. See *infra* section V.C. There may also be cases in which the short-run profit sacrifice seems huge, rendering precision unnecessary, but some of the analysis below suggests that one might be misled about the extent of the sacrifice and that the sacrifice itself may be strong evidence favoring liability. See *infra* section II.B; see also section IV.C (addressing ex ante versus ex post recoupment and raising the question whether, even if the up-front profit sacrifice was indeed large, this outcome should be taken as indicative of whether the recoupment condition was satisfied ex ante).

¹⁸The analysis to follow elaborates on these components. Sometimes, however, it may be possible to establish some bounds with less information. For example, if a plaintiff claims that price was below cost by some amount, one might consider that deficit multiplied by the observed quantity (which is either a larger, predatory quantity or a smaller, accommodation quantity, as will be discussed) as a lower bound for the short-run profit sacrifice. As mentioned in note 68, such an approach can haunt plaintiffs that are overly aggressive in presenting high estimates of defendants' costs.

¹⁹This challenge—wherein it is disputed what in fact happened, and what is observed corresponds to the true facts under one of the explanations but not the other—is a central one to which the article frequently returns, particularly in section C's discussion of triangulation and section II.B's elaboration of the strategy of accommodation. Scott Hemphill is among the few to have remarked on this problem. C. Scott Hemphill, Note, *The Role of Recoupment in Predatory Pricing Analyses*, 53 STAN. L. REV. 1581, 1597 (2001).

before entry as if they were those under accommodation, with the short-run sacrifice measured relative to that situation. However, in the simple setting in which a dominant firm drops its price in response to entry, the preexisting price and quantity are those associated with monopoly, not accommodation of entry. Accordingly, this method of imputation would overstate, perhaps greatly, the magnitude of the short-run profit sacrifice. Only if a firm had previously lowered its price to accommodate entry and subsequently shifted to a strategy of predation, lowering its price further, would the immediately pre-predation price and quantity be at accommodating levels.²⁰

In principle, the magnitudes of the components of π^{accom} can be inferred from other information: about market demand, the firm's cost curve, rivals' costs, capacity constraints, product attributes, and so forth. From that information, one can attempt to impute the short-run profit-maximizing price and quantity and then use that information to determine profits under accommodation, π^{accom} . Alternatively, as with much else, one could try to extract the pertinent information from the alleged predator, such as from review of its internal documents and depositions of its employees. More broadly, one would consider all potential sources of information and combine them to derive a best estimate, which obviously will involve substantial uncertainty.

For profits under predation, π^{pred} , the analysis is similar: one needs to know the price, quantity, and cost. The key difference is that, under a maintained hypothesis that predation occurred, these values are in principle observable, although they—particularly costs—may be highly contested and difficult to extract. Moreover, the alleged predator will argue that its actual price, quantity, and costs were not predatory, in which event it would advance alternative—and, in its view, counterfactual—estimates of the components of profits under predation.

Let us reflect further on some aspects of the difference between profits under accommodation and predation: π^{accom} and π^{pred} . The quantity of output will be greater under predation. The smaller quantity associated with accommodation is produced in either scenario. Hence, that quantity's contribution to the profit difference does not depend on production costs but only on the difference in prices (although, as explained, this difference cannot directly be observed). The remainder of the difference in these profit terms will be due to the additional quantity supplied under the predatory strategy.²¹ That quantity increment will generate revenue

²⁰Even then, it might be alleged that the previous price was a failed attempt at predation—not accommodation—leading to a subsequent, more aggressive predatory price.

²¹This aspect of the profit difference—and the concomitant need to assess the predator's costs to determine whether the recoupment condition is satisfied—is omitted in Elzinga & Mills, *supra* note 3, at 873–75, because their criterion (equation (1)) uses the same quantity (for both the predation and recoupment periods) whether the firm engages in predation or not. Regarding the predation period, this assumption may be an over- or underestimate of the profit sacrifice, depending in significant part (but not entirely) on which of the two pertinent quantities is used (assuming that it is indeed one of those two rather than some other quantity). If the lower, accommodation quantity is employed (which would arise if using the observed quantity when accommodation in fact occurred), then the additional profit sacrifice attributable to the quantity expansion is omitted, although if the predation price is above cost for even part of that quantity range, the profit sacrifice would be overstated to that extent. If the higher, predation quantity is employed (which would arise if using the observed quantity when predation in fact occurred), then the sacrifice would be overstated because the quantity expansion (assumed not to be short-run profit maximizing under accommodation) would be treated as if it could have been sold at the higher, accommodating price. (There would, however, be understatement to the extent that some of the additional units had an incremental cost above the higher, accommodating price.) Similar considerations apply to estimation of the long-run profit recovery under the assumption of common quantities (although, as explained in the text to follow, which of the two quantities in that period is greater will depend on the circumstances).

per unit equal to the lower, allegedly predatory price, and raise total costs by the incremental cost²² of generating that quantity. Regarding this latter component, note that it requires determination of the short-run incremental cost of production over the quantity range involved in the predatory strategy. This observation undermines the commonly expressed view that one can assess recoupment, which in turn requires estimation of the short-run profit sacrifice, without getting into the problems of ascertaining the alleged predator's cost structure.²³

Yet another challenge must be confronted in assessing the left side of the recoupment condition: determination of the pertinent weighting factor, δ^{pred} . As noted, the central determinant may be taken as the expected duration of the predation phase. If one takes the ex ante view (on which, see section IV.C), then we have another component that is not observed, even if the alleged predation has run its course. The question is how long a rational predator in the defendant's position would have anticipated to be necessary in order to drive out (or otherwise discipline) the rival. If this period would be sufficiently short (say, a rational rival would be expected to exit immediately), then the expected short-run profit sacrifice is negligible even if the difference between the two profit terms is large. The recoupment condition would be undemanding. If sufficiently long, then the sacrifice could be very large even if the difference between the profit terms is modest, so the recoupment condition would be highly demanding.²⁴ In order to understand better which case was apt, one would have to develop further the anticompetitive explanation of predation in the context at hand, drawing on the modern economics literature on predatory pricing, the subject of section IV.A. Unfortunately, as we will see there, most work does not develop models or provide empirical evidence on this crucial question. Another important source of information, as with the profit terms, is internal evidence on the firm's own strategic analysis before making its pricing decision.

Now let us move to the right side of the recoupment condition, the expected long-run profit recovery. Similar challenges are present. Again, we have the difference between two profit terms, π^{monop} and π^{accom} . The latter has already been considered (although it is possible that the accommodating prices and quantities, and hence profits, change over time, so the values could differ). The former profit term requires determining the monopoly price and quantity, and corresponding cost, after predation (including how it may change, perhaps gradually erode, over time). Both profit terms, and their underlying components, may require imputations²⁵—from

Note further that even the use of a common quantity does not escape the need to analyze the alleged predator's cost structure. As the text emphasizes, because one of the two scenarios being compared is counterfactual, the price in the unobserved scenario must be imputed, and such imputation will depend on the firm's costs. Moreover, an attempt to infer *which* of the two scenarios is being observed—precisely the central dispute—depends on costs. Relatedly, which of the two quantities is the one implicitly being used in any shortcut for estimation depends on costs, so whether the shorthand over- or underestimates, say, the short-run profit sacrifice will depend on estimated costs even if costs are not used in the computation because it takes quantity to be constant.

²²Various authors use terms such as variable cost, avoidable cost, incremental cost, and marginal cost to refer to the magnitude in question. Sometimes different notions are intended and sometimes not. And sometimes it might be supposed that average cost would be used as a proxy. The present discussion abstracts from these concerns in order to present the core ideas as simply as possible.

²³See *infra* section V.B.

²⁴There is an interdependency in that a steeper price cut, generating a larger per-period profit sacrifice, might raise the probability of a speedier exit.

²⁵The monopoly scenario would not require imputation when it involved restoring, say, a pre-entry situation. Even if some circumstances have changed over time, the necessary assessment may be eased if the resulting circumstances are similar to ones that existed in the recent past.

market demand and cost curves, and other information—and will undoubtedly be contested. If the predation has run its course, it may be disputed how successful it was or if what occurred was indeed predation, so whether any observed price and quantity are the monopoly ones and how what we observe bears on the proper imputation of the alternative scenario must be determined, one way or another.

We can, as with the left side, consider how these profit terms differ from each other. With respect to the quantity that would be sold under both successful predation and accommodation, the profit difference will reflect the price difference. And with respect to the quantity difference between the two situations, one would, in the scenario with the greater quantity, consider the difference between the price charged and the contribution of that quantity difference to costs. Once again, this requires knowledge of the firm's cost structure. Furthermore, because we may be considering a different overall duration than with the predation period, often imagined to be a significantly longer one, the relevant time frame for assessing costs may differ as well.

Note that, unlike with the predation period, it is ambiguous which scenario involves the greater quantity. The reason is that, on one hand, successful predation leading to monopoly would involve a higher market price and hence a lower market quantity, but, on the other hand, the dominant firm would have all the sales rather than only a portion of them. Hence, it will depend on the context which quantity would be larger.

The right side also has the weighting factor δ^{monop} . As mentioned, this factor incorporates the alleged predator's discount rate, the probability of success, the duration of success (rate of erosion, perhaps due to entry²⁶), and the breadth of impact (for example, if a reputation might be established in multiple markets). If this weight is high, the long-run profit recovery will be large even if the difference in the profit terms is modest, and if the weight is sufficiently small, the recovery will be negligible even if the difference in the profit terms is large. If an ex ante view is taken, one will need to assess how these factors would have appeared to the alleged predator at the time it determined its strategy. If one limits the analysis to an ex post perspective and, moreover, waits until any possible effects of predation on subsequent profits have run their course,²⁷ one would rely on what actually happened, albeit relative to a counterfactual scenario.

Having examined the components on each side of the recoupment condition—some of which require imputations for counterfactual scenarios and knowledge of the alleged predator's cost structure—we can see that determining how likely or clearly the recoupment condition is met can be a daunting task. Compounding the problem is that an agency or tribunal is attempting to use limited information to reconstruct a complex decision-making process by an alleged predator that—if actually contemplating various alternative strategies—was itself significantly uncertain about much of the terrain, including many of the components of the recoupment condition.²⁸

²⁶As discussed in section III.A, an important factor that may influence the rate of erosion is the extent to which the predation itself may serve as a strategic barrier to entry.

²⁷See *infra* section IV.C.

²⁸In this respect, the language with which predatory pricing is sometimes discussed seems inapt. See, e.g., *Matsushita Elec. Industrial Co. v. Zenith Radio*, 475 U.S. 574, 589 (1986) (“Absent some *assurance* that the hoped-for monopoly will materialize, and that it can be sustained for a significant period of time, “[t]he predator must make a substantial investment with no *assurance* that it will pay off.” Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. Chi. L. Rev. 263, 268 (1981).” (emphasis added)). It is as if no rational firm would make investments in an

It is important to keep in mind, however, that sometimes it may be obvious whether or not recoupment is plausible, and that, even when it is not, other aspects of predatory pricing analysis are highly challenging as well. Indeed, this latter point is a significant motivation for examining the recoupment condition in the first place. How these uncertainties interact is the subject of the next section and much of part II.

C. Triangulation

Having stated the decision framework in section A and examined the challenges involved in assessing the recoupment condition in section B, this section discusses the logic and processes of inference that are appropriate in settings in which determination of whether the recoupment condition is satisfied is diagnostic with respect to the classification of alleged predation. Questions concerning when, why, and how recoupment is actually diagnostic are deferred until Part II.

For now, suppose that the only relevant competing hypothesis to illegal predation is the accommodation of rivals and that the recoupment condition is indeed diagnostic in the fashion ordinarily supposed. That is, recoupment is understood to be a necessary condition for illegal predation—the requisite short-run profit sacrifice is rational if and only if there would be sufficient long-run profit recovery—but is unnecessary for accommodation—there being no short-run sacrifice that needs to be recovered. In particular, this section will address varying degrees of proof, and hence confidence, with regard to analysis of the act itself (say, all evidence bearing on whether the alleged pricing is predatory versus accommodating, without consideration of recoupment) and with regard to whether the recoupment condition is met.

Begin with the familiar logic. If a rational, profit-maximizing firm is engaging in something that actually constitutes predatory pricing, then it must expect, *ex ante*, to boost its future earnings enough, relative to what they otherwise would have been, to recover (on a discounted basis) at least its short-run profit sacrifice, that is, to recoup. In short: $PP \Rightarrow R$. (“PP” refers to predatory pricing being the true explanation for the observed behavior, “ \Rightarrow ” is the logical “implies” symbol, and “R” refers to recoupment being true, which is to say, the recoupment condition being satisfied.) Therefore, as a matter of simple logic, if we know that recoupment could not have been rationally anticipated, we know that our presumed-to-be profit-maximizing firm must not have been engaging in predatory pricing. In short: $\sim R \Rightarrow \sim PP$. (“ \sim ” is the logical negation symbol.)

This logic indicates that one way to help determine whether PP is true is to determine whether R is true. If R is false, i.e., $\sim R$, then we know PP is false, i.e., $\sim PP$. The fact that R is a necessary condition for PP, so that $\sim R$ is a sufficient condition for $\sim PP$, does not tell us whether PP is true when R is in fact true. (I.e., it is not the case that $R \Rightarrow PP$, notably because profitable predation may be deterred.²⁹) Therefore, inquiries into R constitute a means of eliminating PP

uncertain world.

²⁹One could incorporate expected sanctions (a key feature omitted from most analysis of predation; *see infra* section IV.A) into the profitability condition: the anticipated short-run profit sacrifice would have to be exceeded by the expected long-run profit recovery, which itself would subtract expected sanctions—a more demanding recoupment condition. Thus modified, there would be a stronger inference from R to PP because then, when R is true, PP would be profitable, all things considered, so an imputation of profit maximization implies that the firm would have chosen to engage in predation. (Among other reservations, one might be worried that alternative investments would have been even

claims but not of confirming them. (Of course, as a matter of Bayesian reasoning, if we begin with uncertainty over whether PP and R are true, and we resolve the uncertainty about R and conclude that R is true, this produces Bayesian updating of the probability that PP is true in an upward direction, having ruled out a subset of the cases in which PP is false but none in which PP is true.³⁰)

This logic underlies some arguments in the predatory pricing literature and cases. On one hand, it directly corresponds the familiar point that recoupment is indeed a necessary condition for predation, which is the source of the so-called recoupment requirement.³¹ On the other hand, this logic also directly supports the argument (suggested, for example, in the *Brooke Group* dissent³²) that, if we know that PP is true, we should infer from that very conclusion that R must be true. It also appears to present a conundrum, suggested, for example, by aspects of the *Brooke Group* majority opinion:³³ what are we to make of cases in which both PP is true and R is false? Since $PP \Rightarrow R$, should we override the conclusion of $\sim R$, finding liability? Or, since $\sim R \Rightarrow \sim PP$, should we override the conclusion of PP, finding no liability? Or do we suspend the laws of logic and engage in some other sort of “reasoning”? This fairly obvious tension—perhaps hidden by focusing on one of the two strands in isolation, at the expense of the other—has received remarkably little attention.³⁴

The solution to this apparent puzzle begins with a recognition of uncertainty. In particular, there is often significant uncertainty concerning both PP and R. Great uncertainty in the determination of whether a defendant’s pricing is actually predatory is understood to be posed by the use of cost-based tests that necessitate difficult inquiries into cost.³⁵ Indeed, this concern is a central justification for inquiring into recoupment in the first place. And section B reveals that, on reflection, assessing recoupment is often quite difficult—in part, again, because of the difficulty in assessing cost, but for other reasons as well. Once one has disposed of easy

more profitable than predation, but properly understood, the opportunity cost of funds to the firm would already be reflected in the discount rates.) See also *infra* note 60 (further discussing how the prospect of liability may deter otherwise profitable predatory behavior).

³⁰As elaborated in section IV.B, however, Bayesian posterior probabilities are not strictly relevant under the appropriate approach to the optimal determination of liability in this setting, which is concerned with the provision of incentives rather than dictating the actions of parties before the tribunal. Nevertheless, similar reasoning would apply to the relevant frequency distributions.

³¹Michael Katz nicely puts the point. “[Y]ou can think of [the recoupment test] as a reality check: If there was no reason for the firm that has been alleged to have engaged in predation to expect to be able to recoup, then it raises the question of why the firm would have ever tried to engage in predatory pricing.” See *The Current State of Economics Underlying Section 2: Comments of Michael Katz and Michael Salinger*, THEANTITRUSTSOURCE, Dec. 2006, at 1, 6.

³²See *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 258 (1993) (Stevens, J., dissenting); cf. *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227, 232 (1st Cir. 1983) (Breyer, J.) (explaining that the intuitive idea behind the price-cost test is that, absent other explanations, one can infer that the firm plans to raise the price in the future). For further discussion, see section V.A.

³³As discussed in section V.A, this version is largely implicit but is strongly suggested by the majority accepting for purposes of the appeal the jury’s finding that the defendant engaged in below-cost pricing, satisfying the legal test for predation, yet questioning and ultimately rejecting that any reasonable decision-maker (presumably including the firm itself) could have plausibly believed that recoupment was feasible. See *infra* note 209.

³⁴A further tension, elaborated in section II.B, concerns the point that a significant reason that the recoupment condition might fail is that the short-run profit sacrifice (the left side of the inequality) is large, but the very existence of a short-run sacrifice is evidence of predation rather than accommodation.

³⁵Some of the motivation for cost-based tests, in turn, derives from what is regarded to be greater uncertainty if the assessment is based on a broader, all-things-considered judgment.

cases in which it seems fairly clear that predation did not occur, whether through direct inquiry or examination of the recoupment condition, we are left with the more serious cases in which there is a nontrivial probability of predation and recoupment.

It is helpful to consider some particular possibilities. Suppose, for example, that we are significantly uncertain about PP but nearly certain that R fails (i.e., $\sim R$). Then, the logic of $\sim R \Rightarrow \sim PP$ indeed provides a strong basis for finding no liability, or at least to assess a low probability that the correct classification is one of predatory pricing.³⁶ By contrast, suppose instead that we are significantly uncertain about R but nearly certain that PP is true. In that event, the logic of $PP \Rightarrow R$ should lead us to find liability, or at least to assess a high probability that the correct classification is one of predatory pricing.³⁷

The sort of reasoning in these examples is more familiar, perhaps, in other contexts. Suppose that, in a medical malpractice case, there is powerful independent (and not directly rebutted) evidence that the care provided was exemplary: an experienced surgeon with a perfect track record, who was well-rested and supported by highly trained staff, performed the operation, and the checklists indicate that everything was done appropriately. That evidence would ordinarily be decisive for a defendant, but it would be quickly set to the side if the plaintiff had awakened after the procedure with a surgical sponge left inside. Or consider what appears to be an unusually strong alibi. Ordinarily, the defendant would be exonerated, but if there was also a videotape of the crime or DNA evidence linking the defendant, a guilty verdict would be warranted. In both cases, sufficiently strong evidence on one dimension can override quite strong (but importantly weaker) evidence on another.³⁸

In all of these instances, and more broadly, the correct process is one of triangulation: reasoning from all of the evidence toward an overall conclusion.³⁹ In the present context, the relevant conclusion concerns the likelihood that the proper classification is one of predation rather than accommodation. The need for explicit and thoughtful triangulation is great in cases in which the strength of proof regarding both PP and R is mixed. In such instances, if one properly analyzes all the evidence in attempting to ascertain the relative likelihood that the defendant's pricing involved predation rather than accommodation, one would have already

³⁶That is, our fairly high confidence of $\sim R$ leads us to resolve our significant uncertainty about PP in a negative direction.

³⁷Here, our fairly high confidence that PP is true leads us to resolve our significant uncertainty about R in a positive direction. Each of these examples comes in varying strengths. For example, if we are fairly certain that PP is true, but supremely confident that R fails, we should nevertheless conclude that the probability that PP is true is low. One omitted variation is that in which we are essentially certain that PP is true and that R is false, which, as explained, is contradictory on its face. One resolution refers to the triangulation in the next paragraph: even if we are highly certain regarding PP and $\sim R$, we may still be relatively more certain of one, so as to resolve the apparent conflict. Other resolutions involve the consideration of alternative explanations of the sort explored in Part II.

³⁸Anticipating a conclusion later in this section, it would not make sense in this example to state that an alibi is an independent defense that may be established only by evidence pertaining to the specific alibi, and not via indirect inferences, however powerful, regarding other aspects of the crime. The relevance of evidence indicating that the defendant was elsewhere is not that we care per se about where else the defendant may have been but rather because of its role in negating that the defendant in fact committed the crime. And even when such evidence appears, in a vacuum, to be fairly powerful, it may ultimately be overridden by stronger evidence on the matter of ultimate concern.

³⁹That recoupment's proper role involves triangulation is not itself unfamiliar, but prior elaboration of the process has been fairly limited. *See, e.g.*, 3A PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW 51–53 (4th ed. 2015).

taken into account the logic of $\sim R \Rightarrow \sim PP$, among many other considerations.⁴⁰

For example, one would naturally examine conditions of demand, which in turn would bear on whether an observed price might be inferred to be predatory, how likely would be the price charged to drive out a rival, and what were the magnitudes of various of the profit terms in the recoupment condition. Different estimates of aspects of demand might simultaneously adjust one's conclusions on all of these dimensions. Perhaps some would point toward predation and others toward accommodation.

This idea is also important with respect to cost conditions. For example, if a defendant's costs are lower, a given short-run price is less likely to be predatory, the viability of current rivals is lower, the prospect of subsequent entry is also lower, and (partly related to the foregoing) all of the profit terms in the recoupment condition will differ. Rather clearly, differences in cost estimates have multiple and partly conflicting implications for the likelihood that the defendant's pricing involved predation rather than accommodation.⁴¹

Regardless of the nature of the evidence under consideration, note that, when engaging in triangulation, we are interested not only in the likelihood that the recoupment condition is satisfied but also in the degree to which this may be so. Recoupment, as viewed by the firm *ex ante*, ordinarily involves an uncertain prospect, and a further layer of uncertainty is added when an agency or a tribunal attempts to replicate *ex post* the firm's *ex ante*, probabilistic calculus. For these reasons and others, the magnitude of expected recoupment will bear positively on the likelihood that a defendant's observed pricing was predatory rather than accommodating.⁴²

It is useful to keep in mind the point, stated at the outset of section A, that recoupment is a derivative inquiry: We are not independently interested in satisfaction of the recoupment condition as such in terms of reaching an overall decision on liability.⁴³ Rather, recoupment analysis is relevant only because of how it bears on the key determinants of liability, here the emphasis being on classification. It follows that there is no logical basis for an independent recoupment requirement as such, and relatedly, no associated probability threshold with respect

⁴⁰A key point in this respect is that, as part II emphasizes, the actual relationship between PP and R is different from what is commonly supposed (and taken in this section to be true); hence, the manner in which triangulation should be undertaken with regard to recoupment is more varied and more subtle than meets the eye. For some competing explanations, notably, the sorts of procompetitive ones examined in section II.A, recoupment may not even be diagnostic, in which event one may not need to address such subtleties.

⁴¹These interactions are examined further in sections II.B and II.C.

⁴²Naturally, what matters to a profit-maximizing firm is not the probability of recoupment in isolation but whether the overall expected gain (adjusted for risk, as appropriate, and perhaps discounting for proponents' potentially excessive enthusiasm) is positive. This consideration is particularly important when recoupment is highly probable, even though the net gain conditional upon success is modest, or when recoupment is unlikely but, conditional on success, the net gain is large (as might arise, for example, if a firm hopes to establish a reputation for toughness). Accordingly, when engaging in triangulation, we should be more inclined believe that seeming but uncertain predation is indeed predation when the magnitude of expected recoupment (if it is in fact predation) is large than when the recoupment condition is satisfied only to a modest extent. Conversely, if recoupment fails by a wide margin, we should be more skeptical that the defendant's pricing was predatory (when other evidence is uncertain) than when recoupment seems to fail only modestly. This explanation, however, oversimplifies in ways that are elaborated in section II.B.

⁴³Indeed, when using the logic $PP \Rightarrow R$, the finding on R is doing no work in the sense that our conclusion regarding the high likelihood of PP is not in any way boosted by the fact that this very conclusion leads us to believe that R must be quite likely as a consequence.

to recoupment in isolation.⁴⁴ In the earlier illustration in which the evidence indicated that PP was quite likely to be true, even substantial uncertainty about R, to the point of doubting it significantly, did not disrupt the conclusion that PP was likely, as long as the confidence with respect to PP was sufficiently high by comparison to the magnitude of our doubts about R. Likewise, even if our recoupment condition holds with certainty, that finding may not much boost an otherwise negative finding on PP, here because R is a necessary but not sufficient condition for PP (as mentioned, because the prospect of liability might deter predation).

In sum, recoupment may be helpful in classifying whether a defendant's conduct actually involved predation. And recoupment will often enough be a useful heuristic that it is worthwhile to collect and analyze evidence with an eye toward determining whether the recoupment condition is satisfied. But these conclusions follow as a consequence of triangulation, not because recoupment is relevant in a vacuum. That is, the higher is the likelihood—and, as emphasized throughout this section, there will often be significant uncertainty in this regard—that the recoupment condition is satisfied, and to a greater degree, the greater is the likelihood that we are seeing predation rather than accommodation, all else equal.⁴⁵ But we care directly only about this ultimate conclusion regarding classification, not particular intermediate findings we may have made along the way. This point is magnified by the analysis in part II, which reveals recoupment's actual relevance to be more varied and subtle than assumed here.

D. Error Costs

Section C, like much of this article, focuses on the classification of acts as anti- or procompetitive. However, as the framework in section A emphasizes, magnitudes are important as well. This point is familiar from simple decision theory. In the medical treatment setting, a twenty percent probability of a disease being present would be easily sufficient to justify treatment if the benefit, conditional on the disease being present, was ten times as great as the harm (due to side-effects) if it was not. But an eighty percent probability would be clearly insufficient if the harm from mistaken treatment was ten times greater than the benefit of correct treatment.

Returning to the problem of when to assign liability for predatory pricing, it is usually ignored that both the benefits (of correct imposition of liability) and costs (of mistaken imposition of liability) can each vary (often independently) by large amounts. In this section, we consider whether recoupment analysis in particular may bear on these magnitudes. Note that, to the extent that the answer is affirmative, this means that recoupment analysis can be relevant to liability even in cases in which satisfaction of the recoupment condition is uncontested. As long as classification is disputed (but not necessarily because of doubts about recoupment), there is a risk of error, and an optimal liability determination depends on the magnitude of the benefits and costs of different outcomes; hence, anything (including recoupment) that bears on these

⁴⁴This point leads directly to the argument in section V.B that, as a matter of logic and policy if not intent or interpretation, the recoupment “requirement” that many associate with *Brooke Group* is better viewed as a factor than as an independent element, and that statements in that case, as well as in *Matsushita*, that predation can only be rational with the expectation of recoupment are consistent with this view.

⁴⁵Recall that, although it is *not* true that $R \Rightarrow PP$, it is the case that, ordinarily, stronger findings regarding R favor a stronger conclusion on the likelihood of PP, a point that is immediate from the converse: because weaker findings on R weaken our conclusion on the likelihood of PP, it must likewise be true that stronger findings on R support PP.

magnitudes is relevant. As was true in section C, what matters here is not the probability that the recoupment condition is satisfied but rather how the analysis of recoupment bears on the direct determinants of the optimality of assigning liability. To the extent that, as will be explained, the recoupment condition—as a whole or examining each side separately—is indicative of these magnitudes but does not measure them in the most direct way in light of the underlying information, it would not make sense to conduct recoupment analysis as such. The key takeaway in this respect is that many aspects of recoupment analysis have fairly direct relevance to these magnitudes.

As the literature on predatory pricing has occasionally recognized, there is a connection between recoupment and the magnitude of harm that predatory pricing would cause.⁴⁶ The right side of the recoupment condition in section B represents a predator's expected profit recovery from predatory pricing. The greater the expected recovery, all else equal, the more likely is the recoupment condition to hold (and, if it does, by a greater margin, which is also relevant to classification, as explained in section C). But greater gains derive from greater monopoly profits. The term in parentheses on the right side, recall, is the difference between the monopoly (really, elevated) level of profits in the event of success and the level of profits if instead a (more competitive) strategy of accommodation had been followed. Moreover, the weighting factor on the right side reflects a number of factors that similarly bear not only on profits but also on harm, including the expected duration (or rate of decay) of supracompetitive profits and the number of markets in which they are likely to be reaped.

Although monopoly profit is not the definition of harm under most views of the objectives of competition law,⁴⁷ the degree of such profits is positively related to harm. Under a consumer surplus standard, the higher the price, the longer it is elevated, and the more markets in which price is elevated, the greater will be the loss. The relationship between profits and lost consumer surplus is not linear—for example, the last bit of price increase generates negligible profits but nontrivially reduces surplus—but typically there is a positive relationship in the relevant range.⁴⁸ Under a total welfare standard, there is also a positive but (a different)

⁴⁶See, e.g., Joskow & Klevorick, *supra* note 3, at 225 n.33, 227–28, 235–36.

⁴⁷A total welfare standard is conventional in welfare economics and is associated with ordinary cost-benefit analysis. Its generic justification against distributive objections sometimes offered to support a consumer welfare standard is that distributive concerns tend to be most efficiently addressed directly, via taxes and transfers. See, e.g., LOUIS KAPLOW, *THE THEORY OF TAXATION AND PUBLIC ECONOMICS*, chs. 2, 6, 8 (2008); Louis Kaplow, *On the (Ir)Relevance of Distribution and Labor Supply Distortion to Government Policy*, J. ECON. PERSP., Fall 2004, at 159; Louis Kaplow & Steven Shavell, *Why the Legal System Is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667 (1994). For elaboration with regard to competition policy, see Louis Kaplow, *On the Choice of Welfare Standards in Competition Law*, in *THE GOALS OF COMPETITION LAW* 3, 7–18 (Daniel Zimmer ed., 2012) [hereinafter *Welfare Standards*], and with respect to predatory pricing in particular, see Aaron Edlin, *Predatory Pricing*, in *RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW* 144, 160–64 (Einer Elhauge ed., 2012). Total welfare is also sometimes defended on the ground that it promotes long-run consumer welfare because the prospect of profits is what encourages investments, including in innovation. Conversely, consumer welfare is sometimes favored as a workable test that tends to promote long-run total welfare for various reasons, including that profits due to supracompetitive prices induce rent-seeking investments. Regarding the latter, see Richard A. Posner, *The Social Costs of Monopoly and Regulation*, 83 J. POLIT. ECON. 807 (1975). The present article is agnostic.

⁴⁸In general, a higher price, a greater duration, and a greater number of markets that each contribute a unit to the predator's profits will cause differential amounts of loss in consumer surplus—and, anticipating the next point in the text, (other) differential amounts of loss in total surplus. That is, the right side of the recoupment condition is indicative of the degree of harm from predatory pricing but not directly a measure of that harm. Cf. *infra* section III.A (explaining how market power, in certain senses, may be correlated with profit terms in the recoupment condition but not a direct measure

nonlinear relationship between the degree of monopoly profit and welfare loss (in this case, deadweight loss).

Next, examine the left side of the recoupment condition. The degree of short-term profit sacrifice required for predation to be successful will depend on such factors as firms' cost structures and the nature of information asymmetries, as elaborated in section IV.A. Here again, there is some tendency for this measure to relate to gains and losses, but the relationship is less straightforward. If the goal is taken to be consumer surplus, a greater required profit sacrifice is advantageous for the familiar reason that consumers benefit from the price reduction in the predation phase. Therefore, to the extent that recoupment is more likely because the left side is lower, consumers' gains from predation are smaller, making predation's net harm greater. That is, satisfaction of the recoupment condition in this respect also favors liability when considering the magnitude of harm conditional on predation having occurred. By contrast, a greater profit sacrifice also (familarly) may reduce total welfare to the extent that part of the sacrifice is from below-cost pricing and hence the inefficient production of units that generate less consumer gain than their resource cost. If total welfare is the objective, therefore, a greater likelihood of recoupment because of a low short-run profit sacrifice may be associated with less net harm from predation, making liability less attractive, all else equal.⁴⁹

Examining both sides of the recoupment condition together can be interesting as well. Suppose, for example, that the condition barely holds, but that in one case both sides of the inequality are large (with the right side slightly larger) and in a second case that both sides are small (with the left side slightly smaller). If we compare the former case to the latter from a consumer welfare perspective, we have a larger loss due to the right side but a larger gain due to the left side. Recalling that the relationship between firm profits and consumer surplus is nonlinear, and considering as well that different contributors to profits can influence consumer surplus differentially, it is not obvious whether the total loss in consumer surplus is greater in one case or the other.⁵⁰ But from a total welfare perspective, the former case involves a larger

of those terms).

⁴⁹Although many embrace the consumer welfare objective for antitrust, it is interesting that with respect to exclusionary practices, and predatory pricing in particular, some of the same commentators also advance legal tests aimed to protect only more efficient rivals, even at the expense of consumer surplus. That is, under some views, the law is not supposed to aid the survival of less efficient rivals that nevertheless temper the dominant firm's pricing, which in turn would raise consumer surplus. Indeed, such enablement would sometimes raise total surplus as well because, despite the resulting inefficiency in production, the gain to consumer surplus could be greater. It is not just total welfare rather than consumer surplus that is implicitly advanced by such policies, but production efficiency at the expense of consumer welfare and possibly total welfare as well—an implicit objective quite at odds with consumer welfare. See Edlin, *supra* note 47, at 160–64; Louis Kaplow & Carl Shapiro, *Antitrust*, in 2 HANDBOOK OF LAW AND ECONOMICS 1073, 1193, 1199 (A. Mitchell Polinsky & Steven Shavell eds., 2007). This tension is all the greater when one considers the point in the text regarding whether recoupment should define the boundary of liability because it determines when overall consumer welfare rises or falls as a consequence of attempted predation. Of course, stringent cost-based predation tests can readily be advanced on consumer or total welfare grounds, with the inclination to err on the side of exoneration being motivated by a belief that more seemingly balanced tests would encourage a flood of litigation and risk costly false positives.

⁵⁰The limiting version of the second case, in which both sides are negligible, obviously involves a net effect on consumer surplus that is negligible. From the perspective of consumer surplus, note that, in cases in which recoupment holds (or fails) by modest amounts, one cannot determine without further analysis whether the net effect on consumers is overall positive or negative (whereas if the condition holds by a large enough magnitude, the consumer gain associated with the predation period is necessarily outweighed by the consumer loss during the profit recovery period, and conversely if the condition fails by a sufficient amount). A contrary view regarding the appropriate objective is advanced in Leslie, *supra* note 17, at 1742. He argues that predation should be regarded to harm consumers even if their gain in the

loss associated with both sides of the recoupment condition.

The foregoing addresses how recoupment analysis bears on the harm associated with actual predation and hence the magnitude of the benefit of assigning liability conditional on the classification of predation being correct. It is also appropriate to consider how satisfaction of the recoupment condition might bear on the magnitude of the loss from the mistaken imposition of liability, which is to say, the magnitude of chilling effects. The focus of section II.E is on how the harm associated with false positives varies, quantitatively and qualitatively (including that this harm can be negative, that is, a benefit) across competing explanations for allegedly predatory behavior. As a consequence, there is nothing approaching even a rough, one-size-fits-all answer to the present question. Nevertheless, a few preliminary remarks are in order.

To the extent that easier recoupment is associated with conditions being less competitive, there would be a tendency for the chilling of otherwise competitive price reductions to be more detrimental. That is, clearer satisfaction of the recoupment condition may imply that the cost of mistaken assignment of liability is greater, which disfavors liability. This point may be more apparent when contemplating the opposite situation. Suppose that recoupment is dubious because entry by efficient potential rivals is thought to be easy, despite fears they may have about predation. The prospect of chilling price reductions of seeming predators in such situations may not have high social costs because market prices would not remain significantly elevated due precisely to the prospect of such entry.⁵¹ As will be explored below, however, this possibility does not cover the full domain but rather depends on the nature of what might be chilled—that is, on the competing explanation for the allegedly predatory pricing.

II. Competing Explanations

In Part I, the competing explanation to the hypothesis of predation was taken to be the accommodation of rivals. In addition, section C, on triangulation, which focused on classification, just assumed that the recoupment condition was diagnostic in a straightforward manner. We will now see that this framing of the problem, which follows conventional understanding, is highly restrictive. Even though satisfaction of the recoupment condition is necessary for predation to be rational, whether the recoupment condition is satisfied does not directly distinguish some key competing explanations because they too require recoupment. Furthermore, the diagnosticity of recoupment with respect to other explanations is much more subtle and complex than is generally appreciated (and than was assumed above). This part therefore reveals a surprisingly large gap in understanding with respect to when and how recoupment analysis is important.

predation period exceeds their loss in the recovery period because the two groups of consumers need not be the same (a view that would deem, for example, a product upgrade as harmful to consumers despite any degree of overall gain if some consumers preferred the former version of the product, which is no longer offered). Accordingly, Leslie criticizes courts' unwillingness to punish firms that in essence take from Peter to pay Paul even more (making up the shortfall from their own pockets), *see id.* at 1709, 1742, arguing instead that it is important to punish such activity. For a different view regarding both sides of this controversy, see section II.D (questioning why firms should be thought to engage in such behavior in the first place and examining the desirability of liability for apparent mistakes in light of its *ex ante* effects on anti- and procompetitive behavior).

⁵¹It remains true that, to the extent that prospective alleged predators are more efficient producers, chilling their price reductions will tend to shift production to less efficient firms.

Until section E, attention is confined to classification. Section A begins with explanations for pricing that appears to be predatory but actually involves procompetitive investment, such as the promotion of new products. Because such competing explanations likewise require recoupment, the condition is not directly diagnostic. Section B revisits the possibility that the challenged pricing involves the accommodation of rivals. Here, recoupment is diagnostic, as supposed in part I, but the proper analysis is notably more complex. Section C examines how recoupment may help distinguish between illegal and legal predatory pricing—the latter arising in regimes that, for example, employ cost-based tests that exonerate some price cuts that are predatory in important respects. Legal predation also requires recoupment, but the recoupment condition may nevertheless be diagnostic, albeit in subtle ways, because the requisite recoupment demands under illegal and legal predation generally differ. Section D examines other explanations, notably those that implicitly question the wisdom of the alleged predator's price cut. Although imputing irrationality directly contradicts the conventional logic behind the recoupment inquiry, such explanations, paradoxically, appear to be necessary to make sense of much analysis of recoupment by courts and commentators alike. Section E closes by considering further the role of false positives in predatory pricing analysis. Both the magnitude and the nature of the costs of false positives depend greatly on the particular competing explanation for the allegedly illegal predatory pricing under scrutiny, making specification of the alternative hypothesis all the more important.

A. Procompetitive Investments

This section examines explanations for seemingly predatory prices that, like actual predation, entail a short-run sacrifice, but nevertheless involve procompetitive investments of sorts. The difference is that the low up-front prices are purportedly justified by long-run enhancements to efficiency and corresponding benefits to consumers. As will now be explained, these alternative explanations, like predatory pricing, presuppose recoupment.⁵² As a consequence, examination of whether the recoupment condition from section I.B is satisfied will not be diagnostic (at least in a straightforward fashion) regarding whether the anticompetitive or procompetitive explanation is correct in the case at hand. (For purposes of this article, the alternative explanations considered in this section will simply be assumed to be procompetitive, although this supposition is contestable.⁵³)

⁵²This section does not consider the alternative explanation under which allegedly predatory prices, by raising quantity, enhance demand for the alleged predator's complementary products that are sold at positive margins and hence generate more present profits than any profit sacrifice on the product in question. In this instance, there is no short-run profit sacrifice that requires future profit recovery. Put another way, such pricing can be seen as accommodation (which suggests that the challenge of identifying the accommodation benchmark is sometimes even more challenging than suggested in sections I.B and II.B). *Cf.* Justin P. Johnson, *Unplanned Purchases and Retail Competition*, 107 AM. ECON. REV. 931 (2017) (analyzing a loss leader strategy employed by larger firms employed to attract buyers who will purchase other products).

⁵³The discussion here assumes in particular that product promotion and moving down one's own learning curve so as to reduce future production costs are procompetitive. This view, however, is hardly obvious. For example, when learning-by-doing is important, to the extent that a dominant firm's lower short-run prices lead it to make additional sales, its own costs will fall but those of rivals, if subject to a similar learning curve, will accordingly rise since their output is reduced; we thus have a strategy that raises rivals' costs while lowering, not raising, one's own costs. *See* David Besanko, Ulrich Doraszelski & Yaroslav Kryukov, *The Economics of Predation: What Drives Pricing When There Is Learning-by-Doing?*, 104 AM. ECON. REV. 868 (2014); Luis M.B. Cabral & Michael H. Riordan, *The Learning Curve*,

Sometimes price reductions are defended on the ground that they are promotional. Prices might be very low, for example, to facilitate the efforts of a dominant firm in one market to penetrate other markets or to enable a rising firm to become a major player in a new industry. In such cases, the requisite short-run profit sacrifice makes sense only if the firm expects to generate positive margins in the future.

Another strategy that employs low prices, which generate a short-run profit sacrifice, is the early production of a greater quantity of output in order to move more rapidly down a learning curve.⁵⁴ With rising (current) marginal costs, boosting quantity at a given price may entail a profit sacrifice. Moreover, regardless of the firm's marginal cost curve, selling a higher quantity generally requires reducing price, which reduces profits on sales the firm would otherwise have made and (when the benchmark price equalled marginal cost) loses money on the incremental sales as well.⁵⁵ Once again, such a strategy can be rational only if the firm expects, as a consequence, to earn higher profits in the future.

Such strategies are hardly fanciful for dominant firms. Variants of these explanations might be apropos, for example, when Uber or Walmart enters new geographic or product markets or when large technology firms continue to run significant losses for years when establishing themselves in a new market. High market capitalizations despite not having yet turned a profit indicate that investors believe that substantial positive margins will be earned in the future on a significant sales base for a long period of time. Moreover, as is familiar, predatory pricing allegations have arisen in such settings—that is, when such procompetitive explanations may plausibly be offered by defendants.⁵⁶

The key point for present purposes is that such procompetitive strategies, like an anticompetitive predatory pricing strategy, are profitable and hence rational if and only if a recoupment condition like that presented in section I.B is satisfied. Indeed, it is essentially the same condition in qualitative terms. The accommodation profit, π^{accom} , is just a label for the profit from abstention (whether from predation, promotion, or moving down a learning curve). The π^{pred} term can be interpreted as the present profit when the strategy in question (whatever strategy) is adopted—we could simply change the label to π^{prom} or π^{learn} . And π^{monop} can be understood as the future profit flow when the strategy has had its effect of boosting margins—change the label to π^{return} or $\pi^{recover}$. And likewise for the two weights, δ^{pred} and δ^{monop} .

Accordingly, the left side of the first version of the recoupment condition, the so-called

Predation, Antitrust, and Welfare, 45 J. INDUS. ECON. 155 (1997); A. Michael Spence, *The Learning Curve and Competition*, 12 BELL J. ECON. 49 (1981); see also C. Lanier Benkart, *A Dynamic Analysis of the Market for Wide-Bodied Commercial Aircraft*, 71 REV. ECON. STUD. 581 (2004) (discussing how below-cost pricing to move down the learning curve when there is the prospect of future market power is relevant to understanding the commercial aircraft industry). Similar questions may be raised, for example, about low prices involving a short-run profit sacrifice designed to build market share in a network industry with switching costs, where (again) gains to the alleged predator are associated with disadvantages to its rivals. See Joseph Farrell & Michael L. Katz, *Competition or Predation? Consumer Coordination, Strategic Pricing and Price Floors in Network Markets*, 53 J. INDUS. ECON. 203 (2005).

⁵⁴Note that, when greater present production reduces future costs, narrowly defined marginal cost may exceed price whereas a conceptually more complete notion of marginal cost would subtract the future savings and hence is lower than what conventional accounting may suggest. See Spence, *supra* note 53.

⁵⁵For firms with market power, which accordingly price above marginal cost when maximizing short-run profits, it remains true that a higher output and correspondingly lower price sacrifices short-run profits (and this is so whether or not the lower price falls below some stipulated cost measure; for further discussion, see section C).

⁵⁶See, e.g., *Wal-Mart Stores, Inc. v. American Drugs, Inc.*, 891 S.W.2d 30 (Ark. 1995); *Desoto Cab Co. v. Uber Tech. Inc.*, 3:16-cv-06383 (N.D. Cal. 2016) (complaint filed).

profit sacrifice, can be understood as just the cost of some investment undertaken in the present, and the right side is just the return from the investment. That is, our condition really just reflects that any investment—that is, any firm strategy with up-front costs and subsequent returns—needs to be profitable in order for a rational firm to be willing to undertake it. On its face, therefore, this condition does not discriminate between anti- and procompetitive strategies when both involve investments. Therefore, in our particular setting, where the procompetitive explanation is promotion or moving more quickly down a learning curve, examining whether the recoupment condition holds need not be diagnostic.

A recoupment inquiry might nevertheless be diagnostic, but in subtle ways and not necessarily in the familiar direction—i.e., greater profit recovery might be required for the procompetitive explanation than for the anticompetitive one. The reason for this residual diagnosticity is simply that, even though the recoupment formulas have analogous terms for predation and for this type of procompetitive explanation, the magnitudes of the terms in general differ, as elaborated in the margin.⁵⁷ Hence, analysis of recoupment might reveal that the

⁵⁷Specifically, the factors contributing to various components may differ for the different strategies. The magnitude of the expected short-run profit sacrifice necessary to execute the strategies could differ substantially, and in either direction. For example, successful promotion might be brief or take years (such as when seeking to displace established firms with brand loyalties or when there are switching costs and network effects), and likewise predation may be swift (which may have been true in *Spirit Airlines, Inc. v. Northwest Airlines, Inc.*, 431 F.3d 917 (6th Cir. 2005)) or prolonged. Regarding the profit recovery period, future entry can differ as well. On one hand, entrants may have difficulty competing with a firm that has long promoted its product and now benefits from substantial loyalty. On the other hand, perhaps the strategic entry barrier erected by predation is powerful (*see infra* section III.A), whereas, in its absence, promotion may not be very strong in keeping future entrants at bay.

More broadly, the best means of distinguishing these procompetitive explanations from a predatory one often will be unrelated to this profitability constraint (and also may have little to do with market power, examined in part III). Notably, product promotion and learning curve phenomena tend to be associated with new products or production technologies, whereas predation may arise with established products and technologies but in a multimarket setting. On the former, see U.S. DEP'T OF JUSTICE, COMPETITION AND MONOPOLY: SINGLE-FIRM CONDUCT UNDER SECTION 2 OF THE SHERMAN ACT 71 (2008) (“Certain types of efficient conduct, such as promotional pricing, may not be plausible when the firm already has monopoly power or a dangerous probability of acquiring monopoly power. Network externalities . . . raise somewhat similar issues. When a firm is trying to build an installed base and win a standards competition, initially pricing below cost may enhance the value of and demand for its product. When a monopolist has already built a large installed-base network, that rationale may not hold. Other efficiencies, such as ‘learning-by-doing,’ . . . may be plausible for a new product even when a firm has achieved monopoly power as to different products; the below-cost price of today may become an above-cost price in the future” (footnotes omitted)) (this report was not joined by the Federal Trade Commission, which had participated jointly in the hearings and other work leading up to the report (*see* Press Release, Fed. Trade Comm’n, FTC Commissioners React to Department of Justice Report, Competition and Monopoly: Single-Firm Conduct Under Section 2 of the Sherman Act (Sept. 8, 2008), <http://www.ftc.gov/news-events/press-releases/2008/09/ftc-commissioners-react-department-justice-report-competition-and>), and was withdrawn the next year when the administration changed (*see* Press Release, U.S. Dep’t of Justice, Justice Department Withdraws Report on Antitrust Monopoly Law (May 11, 2009), <https://www.justice.gov/opa/pr/justice-department-withdraws-report-antitrust-monopoly-law>); it appears that most of the disagreement concerned the report’s statement of substantive rules governing single-firm conduct in a manner that objectors regarded to be too lenient, such as being too generous in safe-harboring behavior or requiring that anticompetitive effects significantly outweigh procompetitive ones, with no suggestion that the overall framework or the role of market power therein was problematic). On the latter, see, for example, David Easley, Robert T. Masson & Robert J. Reynolds, *Preying for Time*, 33 J. INDUS. ECON. 445, 455 n.9 (1985) (“It is noteworthy that many filed Sherman Act cases involve a multi-geographic market firm allegedly preying in a subset of markets, and many of the remaining cases involve a firm with several related products allegedly preying for only some of these products.”). Nevertheless, overlap between procompetitive investment and predation is entirely possible, as suggested by the discussion in note 53. When a large firm in related markets enters a new market inhabited by small, initial innovators, and the firm charges very low prices, it may not be readily apparent whether it is engaging in promotion, moving down

condition plausibly holds for one of the competing explanations but not for the other.

From the beginning, economists, commentators, and courts have understood that a rational predator's strategy involves an investment, with a short-run cost incurred in order to generate a greater payoff in the future.⁵⁸ What has not been appreciated, however, is that some of the alternative explanations for what may appear to be predatory behavior likewise involve investments. The recoupment question asks, in essence: Is this a setting in which an investment would make sense? When both competing explanations are investments, analysis aimed at answering this question in a simple yes-or-no fashion is not well suited to distinguishing the two explanations. This conclusion illustrates one of the key teachings of section I.A: a proper framing of the liability decision involves explicit articulation of both anti- and procompetitive explanations because classification efforts are properly understood as comparative.

B. Accommodation of Rivals

We now return to the competing explanation that the alleged predator's low pricing reflects not predation but rather the accommodation of rivals. In section I.C's analysis of how the recoupment condition may be diagnostic with regard to predation, this was taken to be the alternative explanation. Moreover, it was assumed there that satisfaction of the recoupment condition was diagnostic in a simple manner: Predation requires recoupment whereas accommodation does not because it entails no short-run profit sacrifice. Hence, a stronger demonstration of recoupment was taken to favor liability. This section reexamines the relationship between accommodation and the recoupment condition, which most analysts take for granted and assume operates in a straightforward manner.⁵⁹

To fix thinking, it is helpful to begin by recalling, as explained in section I.B, that the accommodating price response to new entry may well entail a significant price reduction because of the altered competitive context, even when the resulting lower price maximizes short-run profits and does not aim to drive out or otherwise discipline rivals. The pertinent short-run profit

its learning curve, predation, or some combination. Also, the view that moving down a learning curve is only important for new firms is contradicted in some extremely important cases: consider Intel and the phenomenon known as Moore's law (which may characterize an industry as a whole due to technology spillovers, but the benefits may also be appropriated for a nontrivial period of time by the firms engaging in actual production, moving down their own learning curves).

⁵⁸See, e.g., *Matsushita Elec. Industrial Co. v. Zenith Radio*, 475 U.S. 574, 588–89 (1986) (“The forgone profits [from predatory pricing] may be considered an investment in the future. For the investment to be rational, the conspirators must have a reasonable expectation of recovering, in the form of later monopoly profits, more than the losses suffered.”); *AREEDA & HOVENKAMP*, *supra* note 39, at 47–48 (“Predatory pricing is simply a kind of investment. The firm invests money in below-cost pricing today in order to benefit from the ‘recoupment’ of monopoly or oligopoly profits later, after the predatory pricing has destroyed or disciplined rivals. In this sense, the predation is no different from the investment in a new product design, where immediate expenses are expected to be offset by future profits.”); *ROBERT H. BORK, THE ANTITRUST PARADOX* 145 (1978) (“Any realistic theory of predation recognizes that the predator as well as his victims will incur losses during the fighting, but such a theory supposes it may be a rational calculation for the predator to view the losses as an investment in future monopoly profits (where rivals are to be killed) or in future undisturbed profits (where rivals are to be disciplined.)” (quoted in *Matsushita*, 475 U.S. at 589); *Ordovery & Saloner*, *supra* note 2, at 552–53.

⁵⁹An exception is Hemphill, *supra* note 19, at 1592–93.

sacrifice involved with predation is understood here to be relative to that benchmark.⁶⁰ Furthermore, there is the additional possibility (the analysis of which is deferred to section C) of legal predation: price cuts designed to discipline or eliminate rivals but that, for various reasons of legal policy (and often embodied in cost-based tests) do not give rise to liability. These price reductions have in common with accommodation that they are legal, and they are also not designed to produce the sorts of investment benefits examined in section A. But such price cuts differ in that accommodation by definition involves no short-run profit sacrifice that requires recoupment whereas legal predation does.⁶¹ As we will see in this section and the next,

⁶⁰To describe the imagined scenario more precisely, consider a dominant firm that faces a choice between two short-run prices. The first is that which maximizes short-run profits, which we will suppose does not have the effect of eliminating or disciplining rivals, present or future—which is why this price is described as involving accommodation. (It is possible, however, that the short-run profit-maximizing price is itself low enough to eliminate or discipline rivals, in which case it may more aptly be labeled as predatory. An “accommodating” price would be higher than that which maximizes short-run profits in this instance.)

The second price is that which is part of a strategy that maximizes long-run profits. This price, taken to be lower, involves a short-run profit sacrifice (by assumption, since the aforementioned higher price is that which maximizes short-run profits), but nevertheless maximizes long-run profits because of the (again, assumed) effect on rivals, which enables the firm to earn greater profits in the future, and to a sufficient degree to recover its short-run losses. (In this section we continue to assume that the firm is a rational profit-maximizer. Hence, if the second, lower price indeed has the stated properties—which fact may well be in dispute in an actual case—this is the price the firm would choose, setting aside any prospect of legal liability. This proviso reflects that the second, lower price may be more profitable according to the conventional recoupment calculus but may not be selected as a consequence of deterrence. *See also supra* note 29 (further discussing how the prospect of liability influences profit-maximizing behavior).)

This latter price, referred to here as predatory, may or may not be illegal under some stipulated cost-based test, as noted in the text that follows. Such a price is that which maximizes long-run profits, as just described, and whether that price is below the requisite cost concept will depend on what that cost measure is, the firm’s cost structure, and the nature of its strategic interaction with rivals—all of which will determine how low of a price may suffice to eliminate or discipline rivals. *See infra* section IV.A (discussing modern theories of predatory pricing).

This depiction, although more complex than that in many conventional accounts, oversimplifies in a number of respects. For example, it may well be—with regard to the lower, long-run profit-maximizing price—that whether rivals are disciplined is probabilistic (viewed *ex ante*), with the probability rising as the short-run price is further reduced. In addition, a dominant firm concerned about liability for predation may moderate its price reduction relative to the (unconstrained) long-run profit-maximizing price, giving up some expected profit from successful predation in order to avoid a greater expected cost from liability. When one adds that such a firm will take into account how a subsequent tribunal will find facts in attempting to resolve uncertainty—possibly involving mismeasurement of the firm’s costs and other factors—the problem is even more complex. Moreover, these added complications are relevant to how a tribunal should react to the (uncertain) facts that it observes and thereby feed into the optimal legal regime (not just the optimal “test,” as conventionally debated, but also the optimal evidence threshold and how a factfinder best triangulates across the evidence in reaching a judgment). These complications are related to section IV.B’s distinction between legal decision-making that dictates conduct versus that which provides incentives. As we will see in the discussion that follows in the present section, even the oversimplified presentation in the text here reveals the problem of making inferences about illegal predation by making use of recoupment analysis to be much more involved than prior accounts imagine.

⁶¹Note that both accommodation and legal predation could be live issues in a given case because a defendant might claim that its price cut involves mere accommodation but, in the alternative, legal predation. Indeed, there are taxonomic questions concerning the difference between the two (which will be set to the side in the text): On one hand, accommodation is taken to involve charging a short-run profit-maximizing price and legal predation a lower price that does involve a short-run profit sacrifice. On the other hand, as mentioned in the preceding footnote, the short-run profit-maximizing price might be sufficiently low to drive out or otherwise discipline rivals and in that sense be predatory—although legally so under many (but not all) views. This article does not directly address the controversy over the proper test for predatory pricing. *See, e.g.,* Phillip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697 (1975); Oliver E. Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 284 (1977); William J. Baumol, *Quasi-Permanence of Price Reductions:*

examination of the recoupment condition may be relevant to classification for these two types of alternative explanations for alleged illegal predatory pricing, but the connection is notably more complex and subtle than meets the eye and, importantly, the relationship is different for the two explanations.

To begin the analysis, let us revisit a price (reduction) that merely accommodates rivals. Because, under our definition of accommodation, this is the short-run profit-maximizing price and therefore there is no short-run profit sacrifice, no profit recovery is necessary. Accordingly, a conclusion that no significant profit recovery is feasible is consistent with this explanation. That conclusion is also inconsistent with illegal predation (and, as we have seen, with some other explanations for what may appear to be a predatory price). The combination of these points is why a failure to satisfy the recoupment condition is seen as opposing the classification of a defendant's pricing as predatory and thereby favoring exoneration. However, the matter is not so simple.

First, observe that at least some long-run profit recovery is often plausible. Even if rivals were eliminated for only a fairly short period of time or were merely moderately restrained as a consequence of an allegedly predatory episode, the right side of our recoupment condition would be positive. In cases that are not frivolous, this will often be true. Consider as well Part III's discussion of how, under current doctrine, significant market power is required in Sherman Act Section 2 predation cases, even apart from any recoupment condition, which indicates that the long-run profit recovery is unlikely to be negligible. Therefore, many suggestions that subsequent recoupment is implausible in a given case may best be understood as claims that *substantial* long-run profit recovery is implausible.

Next, we need to examine when and how this more qualified conclusion is sufficient to find for a defendant by reference to the recoupment condition. For recoupment to fail despite the fact that the right side of the condition is nontrivially positive, it must be that the left side is larger. This answer, however, is highly problematic for the argument that the defendant's pricing behavior involves accommodation rather than illegal predation. By definition, accommodation involves no profit sacrifice at all. The left side of our condition specifically indicates the extent to which short-run profits are *below those arising under accommodation*. If we are entertaining the hypothesis that the short-run price is the accommodating one, this profit sacrifice, by definition, is zero. Therefore, if it is indeed demonstrated that there is almost surely some short-run profit sacrifice—indeed, a significant one, enough to raise doubts about whether sufficient profit recovery is plausible—then one has thereby ruled out the explanation of accommodation. And, the more confident we are that there is a large short-run profit sacrifice,

A Policy for Prevention of Predatory Pricing, 89 YALE L.J. 1 (1979).; Joskow & Klevorick, *supra* note 3; Aaron Edlin, *Stopping Above-Cost Predatory Pricing*, 111 YALE L.J. 941 (2002); Einer Elhauge, *Why Above-Cost Price Cuts To Drive Out Entrants Are Not Predatory—and the Implications for Defining Costs and Market Power*, 112 YALE L.J. 681 (2003). The analysis here may nevertheless bear on that debate. In particular, predatory pricing tests that limit liability to prices below certain measures of cost—acknowledging that the limitation may immunize actual predation (in many relevant senses)—are often motivated by difficulties of proof and concerns for chilling accommodating or otherwise desirable price reductions. However, it will emerge that, in some settings, it may be clear that a case involves predation rather than accommodation yet unclear whether the predation is of the legal or illegal sort, which calls into question the argument that difficulties of proof favor deeming certain predatory behavior legal. *See also infra* sections C & E and note 82.

the more surely we have ruled out an explanation that definitionally involves none whatsoever.⁶²

Lest this important point be missed, some restatement is helpful.⁶³ Under the accommodation explanation, there is no short-run profit sacrifice, by definition, whereas under the illegal predation explanation there is a short-run sacrifice, which itself is defined by the reduction in profits relative to the level that would be earned under accommodation. Hence, *whether* there was a short-run sacrifice is directly diagnostic.⁶⁴ If there was such a sacrifice, relative to accommodation, then accommodation has already been ruled out. Moreover, if further inquiry casts doubt on the possibility that the subsequent profit recovery—the value of the right side of the recoupment condition—would be sufficiently large, we have a version of the conundrum discussed in section I.C because these findings are inconsistent with both the illegal predation explanation and the competing explanation of accommodation. Further analysis would be required to determine “what gives.” In this respect, one must keep in mind that the estimate of the short-run profit sacrifice—the left side of our condition—would have to be revised all the way down to zero in order for accommodation to fit the facts.⁶⁵ Yet, short of that point, recoupment would be plausible after all, under the presently maintained assumption that there would be some prospect of nontrivial profit recovery in the future. Therefore, it seems that one would need to believe that the future profit recovery would almost surely be zero (not merely modest) in order to find the competing explanation of accommodation to be notably more likely than one of predation through this chain of reasoning.⁶⁶

It is also useful to recast the problem starting, not with recoupment, but with any demonstration regarding direct indications of whether the defendant’s price was predatory or accommodating. This perspective similarly reveals a tension when one interacts that analysis with the recoupment requirement.⁶⁷ The more the defendant’s price is proved to fall below the accommodating price, which more strongly rules out accommodation, the greater is the implied short-run sacrifice. But the greater is the implied short-run profit sacrifice, the greater must be the expected future profit recovery. Hence, holding constant estimates of that (the right side of our inequality), the less likely is the recoupment condition to be satisfied. To summarize, it appears that the stronger is the demonstration of a large price reduction and thus the more forceful is the inference that the observed price was predatory rather than accommodating, the

⁶²At the center of the tensions explored in this section is the simple but not widely recognized point that one cannot directly observe or otherwise know what an accommodating price would be. As emphasized in section I.B’s examination of the recoupment condition, it is both contested what has occurred—and thus whether the actual short-run price is predatory or accommodating—and, in both the predation and recovery periods, at least one of the two scenarios under examination is counterfactual. Prior discussion of predatory pricing and of the recoupment condition in particular is at some level aware of these challenges but rarely articulates them explicitly, which failure may help to explain why the problem featured in this section and others revealed in this article have escaped most commentators’ and courts’ attention.

⁶³Put yet another way: the simple, standard recoupment argument assumes that the left side of our condition is both zero and also a number that exceeds the nontrivially positive value on the right side.

⁶⁴That this feature is most direct is really a tautology since we are using the presence of a short-run sacrifice to determine whether in fact there was a short-run sacrifice.

⁶⁵Although this statement is formally true, in practice it is a matter of appropriate inferences and confidence bounds, reflecting both uncertainty in external assessment and also the fact that the firm itself may have been uncertain about what price would maximize short-run profits.

⁶⁶One should keep in mind that, as in section I.C’s discussion of triangulation, we are at present entertaining only two possible explanations. For further discussion, see section D.

⁶⁷See Hemphill, *supra* note 19, at 1592–93.

more difficult it is to establish recoupment and thus the stronger is the inference that the price was not predatory after all.⁶⁸

Now, this particular implication does not itself demonstrate liability because, as we have seen, short-run profit sacrifice is consistent with explanations other than illegal predation: specifically, procompetitive explanations involving investment and, as will be explored in the next section, pricing that is predatory yet legal. But since these alternative explanations themselves each involve short-run profit sacrifice, they too require recoupment. So a demonstration that no significant long-run profit recovery is possible—or, more precisely, that any plausible recovery falls short of the short-run profit sacrifice—is inconsistent with all of them. Indeed, such a conclusion is inconsistent with every explanation we have considered thus far except accommodation, which involves no short-run profit sacrifice.⁶⁹

To resolve this tension, return to the analysis in section I.C, which focuses on triangulation across different sets of evidence and inferences. The diagnosticity of an inability to recover substantial amounts derives from the fact that predation (as well as certain other explanations) is less plausible (a) the greater is the necessary short-run sacrifice and (b) the less is the expected long-run profit recovery. If evidence strongly demonstrates short-run sacrifice but is ambiguous on long-run recovery, triangulation suggests predation (or, at a minimum, tends to rule out accommodation). If evidence strongly demonstrates a very limited potential for long-run profit recovery but is ambiguous on the significance of any short-run profit sacrifice, triangulation suggests accommodation. When there is significant uncertainty on both fronts, the question is more difficult, and examining other sorts of evidence may be particularly helpful.⁷⁰

Note further that factual disputes about how price relates to various measures of cost—ordinarily taken to be central to price-cost tests for predation—bear significantly on assessment of the recoupment condition. The simple reason is that understanding the alleged predator’s cost structure is central to many components of the recoupment calculus, as elaborated in section I.B. Regarding the left side of the condition, the firm’s costs underlie the determination of what is the accommodating price in the first place, what is the level of profits under that price (whatever it turns out to be), and what is the level of profits under the predation hypothesis. Likewise for the right side involving the recovery period: the future prices and future profits under both accommodation and successful predation depend on the firm’s cost structure.⁷¹

⁶⁸Equivalently, the smaller the alleged price reduction, the more the price seems consistent with accommodation rather than predation yet the easier it is to show the prospect of recoupment that predation requires.

Perhaps some of the difficulty arises in practice because plaintiffs’ lawyers and their experts may tend to overstate their cases. (*Matsushita*, where the Supreme Court took the claim to be that the defendants had incurred huge losses for decades, is suggestive of this point.) As we can now better appreciate, this can come back to haunt them. In order to prevail on the price-cost test, there may be an inclination to overstate cost and thus the degree of profit sacrifice. But if the posited sacrifice is too large, recoupment may thereby appear to be implausible—even if, supposing actual predation to have occurred, the more modest actual sacrifice could plausibly be recovered.

⁶⁹Another exception—that the firm may not be a profit-maximizer—is examined in section D.

⁷⁰Once again, it may be useful to attempt to ascertain an alleged predator’s strategy by examining internal evidence rather than relying exclusively on external, *ex post* reconstruction, through a battle of experts. This point holds quite generally, but it is especially sharp when the external evidence is particularly inconclusive (including situations in which it appears to be inconsistent with all of the explanations under consideration).

⁷¹One way to restate the inquiry when costs are uncertain and we are considering how evidence leading us to believe that the firm’s costs are slightly higher bears on whether liability should optimally be assigned is to ask, in a sense, “what is the derivative of *everything* with respect to cost?” Even more explicitly, if one formulated a complete

Recognizing these points is critical for proper analysis of recoupment. A hope embodied in much of the attention to recoupment is that, when it is difficult to determine whether a price is predatory under some price-cost test—typically because of the difficulty in measuring the proper notion of cost—we might reach a conclusion more readily by considering recoupment instead. When we can plainly see that recoupment must fail (say, because the potential profit recovery is truly negligible), we can often infer that the price must be accommodating rather than predatory. But in cases in which the prospective profit recovery is nontrivial, it is necessary to assess it more directly and, as this section emphasizes, to estimate the magnitude of the short-run sacrifice that predation requires. In turn, we need to understand the firm's costs (and many other factors) in order to assess multiple components of the recoupment condition, so the hope for simplicity that is reflected by the shift in emphasis from a direct examination of the defendant's pricing and costs to an analysis of recoupment might best be understood as wishful thinking.⁷²

But not always. If an allegedly predatory scheme, to be successful, would necessarily entail large profit sacrifice and would generate little prospect of a significant profit recovery, predation is indeed implausible. And sometimes (particularly in frivolous cases), this may be obvious; moreover, readily dispensing with such cases is important. In essence, a defendant would argue that, on one hand, it did not in fact engage in predation, but rather accommodation, so it incurred no short-run profit sacrifice, but, on the other hand, given the market conditions, if it had indeed sought successfully to drive its rival out, it would have had to incur substantial losses for an extended period of time. That, in turn, would have required a huge long-run profit recovery to be profitable, and that degree of success could not plausibly be anticipated in this market. This logic is sound, but it is unclear how often (at least in *prima facie* credible cases) the premise holds. As noted in section I.B on the recoupment condition and in section IV.A to follow, many theories of predation provide little basis for determining, *ex ante*, how long a predator must endure its profit sacrifice in order to induce exit. Indeed, in many of the models, exit would be swift. This qualification reinforces the theme that it is important to specify up front the differing explanations for an alleged predator's behavior, here the focus being on the anticompetitive story. If, for example, the core theory of the challenger's case makes central the rival's limited financial resources, then there may exist a basis for approximating, *ex ante*, the magnitude of the short-run sacrifice that would be necessary for predation to succeed. Then, recoupment analysis could proceed accordingly.

The larger point in this section—which focuses primarily on evidence concerning what actually transpired during the alleged period of predation—is that using recoupment analysis to distinguish predation from accommodation is much more challenging than is commonly supposed. A particular reason to keep in mind is that determination of whether an alleged predatory scheme involves a large profit sacrifice and whether the long-run profit recovery would be relatively small requires substantial knowledge of costs that are regarded to be difficult to assess. More broadly, this section reveals a tension between demonstrations regarding recoupment and those that directly consider defendants' pricing and costs, which poses a

expression for optimal liability determination as an inequality, we can ask what is the derivative of each side with respect to cost. If those derivatives have opposite signs, then higher costs will unambiguously favor or unambiguously disfavor liability. If they have the same sign, then the influence on the optimal liability decision will depend on which derivative has the greater magnitude.

⁷²This conclusion bears directly on the analysis in section V.B of proposed structured decision rules, particularly those that imagine determining recoupment before considering the firm's costs.

significant challenge to efforts at triangulation. In many settings, different strands of evidence pointing more clearly in the same direction are mutually reinforcing, whereas here they may be reinforcing in some respects but conflicting in others, which complicates the inference task.

C. Legal Predation

Let us now consider more fully the possibility that a defendant's pricing is indeed predatory—in the sense that it involves a short-run profit sacrifice that is incurred to eliminate or discipline rivals—but is nevertheless legal. This case can arise if the price is above some designated measure of cost and, for that reason, deemed to be legal without regard to whether it is predatory in effect.⁷³ Because such predation, albeit legal, by definition entails a short-run profit sacrifice, it too requires recoupment in order to be rational. Therefore, at first glance, testing for recoupment does not appear to be diagnostic as between legal and illegal predation.⁷⁴

Examining recoupment may nevertheless be helpful. Perhaps legal predation—because it involves a price higher than that under illegal predation, taking everything else as given, including the alleged predator's costs—entails less short-run profit sacrifice. As a consequence, even though both explanations require a long-run profit recovery, legal predation does not require as much. Therefore, in cases involving significant uncertainty about the extent of profit recovery as well as regarding whether the predation is legal or illegal, triangulation might then lead us more toward finding legal rather than illegal predation when the extent of expected long-run profit recovery is lower.

This reasoning, however, fails to take account of all the relevant uncertainties and the nature of the interdependencies among components of the analysis. As just depicted, the story implicitly imagines some given level of a dominant firm's costs alongside different prices, specifically, a lower one for illegal predation than for legal predation. However, in actual cases, the relevant uncertainties are typically reversed. The defendant's price during the predation period is observable and thus given, and a dispute about whether it involves illegal versus legal predation depends on whether that price is below some measure of cost, which is not readily observable. That is, the contested uncertainty concerns cost, not price. For a given price, a lower estimate of the alleged predator's costs means that the price is less likely to be illegally low. But, as already explained in section B when discussing prices that are accommodating, lower costs also affect the degree of short-run profit sacrifice in a number of ways and likewise the extent of long-run profit recovery. We cannot estimate the degree of expected long-run profit recovery (to determine whether it is low or high) without knowing cost; neither can we ascertain the size of the short-run profit sacrifice.

The matter can be put more sharply by supposing that we observe a given price in the period of alleged predation and ask: As our estimate of the firm's relevant measure of cost falls (making any predation more likely to be legal than illegal), what happens to the likelihood that the recoupment condition is satisfied? Consider specifically the possibility that lower costs make recoupment easier. When that is so, and if, moreover, the matter of recoupment is a close question, then the hypothesis of illegal predation may be favored over one of legal predation to

⁷³See sources cited *supra* note 61.

⁷⁴As explained in note 61, an alleged predator might argue that its pricing involved accommodation, but, if not, then legal predation. In such cases, the analysis in section B and that in the present section would both be applicable.

the extent that recoupment is relevant to classification in the ordinarily imagined fashion—because legal predation would suggest that the recoupment condition should be met by a notably greater margin. Clearly, insufficient attention (essentially none) has been given to the relevance of a recoupment inquiry when comparing the explanations of legal and illegal predation.

In light of the foregoing potential for recoupment analysis to have ambiguous implications, it is necessary to step back and be more explicit about how such analysis relates to our overall decision framework. Recoupment analysis tends to be illuminating precisely when we are uncertain about other matters, notably, cost, and are attempting to triangulate using our best but uncertain estimates regarding multiple factors. Accordingly, we can consider particular types of evidence that pertain to particular factors—costs, entry conditions, the elasticity of market demand, and so forth—and ask whether, say, a higher level of some factor (holding all else equal) favors or disfavors the illegal predation explanation over the legal one.⁷⁵ Simply asking about the recoupment condition as a whole—which is influenced by many factors, some of which (most obviously, costs) pertain to other parts of the analysis—is insufficient and can be misleading.

If we knew literally everything that pertained to the recoupment condition, we would be able to extract and recombine the relevant components in a manner that revealed the explanation for the behavior we observed. Accordingly, we could determine whether pricing was legal or illegal without then having to inquire into recoupment to help triangulate. Instead, because we have significant uncertainty about many components of the analysis, our question is whether a belief that a particular factor is, say, larger, favors one conclusion or another overall, where a significant but not exclusive channel of relevance for that factor may be via the recoupment condition.

For example, easier subsequent entry may suggest that the expected long-run profit recovery may be less. But one would have to ask whether the reason that subsequent entry is imagined to be easier bears on other parts of the analysis. If entrants were anticipated to be less fearful of joining the fray because the dominant firm's costs are imagined to be fairly high, then the observed price in the alleged period of predation is, on that account, more likely to be below the appropriate measure of cost and thus more likely to be illegal. One would also have to consider whether the change in the profits that would be recovered is in a range in which the recoupment condition is significantly diagnostic. For example, if the magnitude of the short-run profit sacrifice entailed by illegal predation is not very great, knowing that the expected long-run profit recovery will merely be large but not huge may not significantly negate illegal predation.

To explore this multi-channel phenomenon further, let us return to settings in which the core uncertainty concerns the relevant measure of cost and consider that factor more fully. Suppose that, if the alleged predator's cost is at the higher end of plausible values consistent with the evidence, then it is higher than the observed price and hence there was illegal predation; but if its cost is instead at the lower end of the relevant range, it is below price and hence the behavior was legal, even if predatory. Consider now how possible differences in our cost

⁷⁵As many economists will appreciate, as a practical matter even the more circumscribed “all else equal” proviso here may be problematic because, when undertaking simulations, it may be thought appropriate when changing one factor, say, the hypothesized level of costs, to recalibrate in ways that imply different values for other unknown parameters.

estimate bear on whether the recoupment condition is satisfied.⁷⁶

If the cost is higher, then the additional units of output being sold during the predation period (that is, relative to the number of units sold under a strategy of accommodation, our benchmark) are less profitable than if the cost is lower. Therefore, the cost being at the higher end of our range and, accordingly, the price being more likely to be illegally predatory, is associated with a greater short-run profit sacrifice and thus a greater need for long-run profit recovery.⁷⁷

But we also need to consider how the cost being higher affects the expected long-run profit recovery. Suppose further that, once rivals were driven out, the dominant firm's output would be higher than under a strategy of accommodation.⁷⁸ Now, if the firm's cost is higher, then those additional units of output during the recovery phase will be less profitable than if the costs were lower. So, under cost levels more consistent with illegal predation, the long-run profit recovery is smaller.⁷⁹

Combining these points for this simple illustration of one possibility⁸⁰ when the firm's costs are higher—in itself indicating illegal predation—the short-run profit sacrifice is larger and the long-run profit recovery is smaller, both of which make the recoupment condition less likely to hold. And, if it does hold, it will tend to do so by a smaller margin. In particular, the margin would be smaller than if the firm's costs were lower—here, by assumption, indicating legal predation—since that implies both a smaller short-run profit sacrifice and larger profit recovery in the recoupment period.

This juxtaposition has an interesting feature: if we could directly see (which ordinarily we cannot, a point central to the present analysis) that the recoupment condition was satisfied by a wide margin, this would be consistent with both legal and illegal predation. If the recoupment condition surely fails altogether, that would be consistent with neither hypothesis—but it may

⁷⁶As in section B, this can be understood as “taking the derivative of everything with respect to cost.” See *supra* note 71.

⁷⁷The analysis here and below, although fairly involved, is still oversimplified. As we imagine different cost levels, we should also be considering how they imply different changes in quantity (keeping in mind, as explained in section I.B, that much imputation, including of quantities, is required for recoupment analysis), which has further implications for the degree of profit sacrifice (and, relevant to the text to follow, for the degree of profit recovery).

⁷⁸Whether output is higher than under accommodation depends on the balance of two forces: because the price after successful predation is higher, market demand is lower, which reduces output; but, because rivals are eliminated or disciplined, they produce less, so the alleged predator produces a greater share of that reduced output. In the case in which output would be lower upon success than it would have been under accommodation, then a higher cost would reduce accommodation profits relatively more, which would raise the estimated long-run profit recovery (the right side of our recoupment condition). In that case, both the short-run profit sacrifice and the long-run profit recovery would be greater, so it would be ambiguous whether the recoupment condition was more likely to be satisfied. (Obviously, if output would be only slightly lower, the long-run profit recovery would only be slightly higher when cost is higher, so the greater short-run profit sacrifice would dominate, yielding results like those in the case considered in the text.)

⁷⁹Note that, for given hypothesized prices during the recovery phase for both successful predation and accommodation, differences in cost are irrelevant to differences in the profit terms for units of output that would be produced in both scenarios (as explained in section I.B): higher costs would reduce both profit terms by the same amount and hence have no effect on the profit difference on the right side of our recoupment condition. But if we are imputing behavior in the recovery period, then different cost estimates imply different prices and quantities, both of which feed back into the profit terms.

⁸⁰For the case in which long-run output falls, see note 78.

well be consistent with accommodation, favoring no liability on that account.⁸¹ But what about when recoupment is a close question and seems to hold just barely? That may be more consistent with illegal predation than with legal predation, favoring liability. Put another way, in this example, the recoupment requirement is easier to meet for legal predation than for illegal predation, but the implications for liability may not be what one might have expected. On one hand, easier recoupment under legal (compared to illegal) predation can favor exoneration because the recoupment condition is more likely to hold. But, on the other hand, easier recoupment under legal predation can favor liability when the recoupment condition is close because legal predation (with its concomitantly lower production costs) may imply that the condition should hold by a wide margin rather than a narrow one.

We have just seen yet another instance in which recoupment analysis may be helpful in triangulation, but the manner in which it may be diagnostic is notably more complex than ordinarily supposed and the degree to which a recoupment inquiry may improve our ability to classify predation as illegal versus legal may be limited. This conclusion is unfortunate because recoupment inquiries are often thought to be most useful when there exists significant uncertainty about a defendant's costs, and in particular, when the range of uncertainty includes a serious possibility that the relevant cost measure may be either above or below the observed price. We have seen that, in this very case, recoupment analysis has a subtle relationship when triangulating to determine whether liability is appropriate. Indeed, in the example given, attention to the recoupment condition can have an implication for liability opposite to that which is commonly supposed.

This case, like that in sections A and B, reinforces a central lesson of part I: recoupment cannot properly be analyzed in a vacuum. Rather, the diagnostic exercise is centrally about triangulation. First, we need an explicit understanding of the pertinent competing explanations for the allegedly predatory pricing because the manner in which recoupment is diagnostic varies greatly across these explanations. Second, for any given factor—keeping in mind that many factors feed into our recoupment condition, some affecting both sides of the inequality and in multiple ways—we need to consider all of its channels of relevance. The reason is that changes in parameters that influence the plausibility of recoupment may also bear in other ways on the likelihood of the competing explanations under examination. That is, one cannot properly analyze the recoupment condition taking everything else to be constant because much of “everything else” is precisely what determines whether the recoupment condition is satisfied, by how much, and how this matters. Attempting to reach a separate, up-or-down conclusion on recoupment can be more misleading than helpful.⁸²

⁸¹Recall from section B, however, that if we are confident that there was a significant short-run profit sacrifice, we would for that very reason have ruled out accommodation.

⁸²Although this article does not directly address the debate about predation tests, *see supra* note 61, the difficulty in distinguishing legal from illegal predation through consideration of recoupment—combined with acknowledged practical difficulties of applying cost-based tests—does motivate reassessment, particularly for cases in which it may be fairly clear that predation occurred (short-run profit sacrifice is obvious and the sorts of procompetitive investments examined in section A are implausible) but unclear whether the price during the predation period was above or below a pertinent measure of cost. *See also infra* section E (addressing the costs of false positives when the true explanation is accommodation versus legal predation). Relatedly, some cost-based rules call for different analysis for different ranges of costs, perhaps distinguishing cases in which price is below avoidable cost, above avoidable cost but below total cost, and above total cost. *See, e.g.*, Patrick Bolton, Joseph F. Brodley & Michael H. Riordan, *Predatory Pricing: Strategic Theory and Legal Policy*, 88 GEO. L.J. 2239, 2273–74 (2000). But if there is significant uncertainty about where a case

D. Other Explanations

So far, this part on competing explanations for illegal predatory pricing has considered procompetitive investments, accommodation, and legal predation. In examining the behavior of presumed-to-be-rational profit-maximizing firms, this list may seem to be exhaustive. After all, we are exploring recoupment, and it seems that either there was no profit sacrifice in need of recoupment (accommodation) or, if there was, that the profit sacrifice was to accomplish some purpose, a procompetitive one (a legitimate investment) or an anticompetitive one (predation, be it legal or illegal).

Nevertheless, recoupment analysis is sometimes presented, by courts and commentators alike, in an apparent effort to distinguish illegal predation from some other, unspecified phenomenon. Moreover, the analysis on one hand purports to be inspired by the notion that plausible explanations must be consistent with the defendant firm behaving as a rational profit-maximizer, but on the other hand seems to be identifying scenarios in which there is significant profit sacrifice without any plausible prospect of recovery.

At various points above, particularly in section B on accommodation,⁸³ the discussion noted the conundrum that arises if one simultaneously believes that there would be a substantial short-run sacrifice but also that there was no serious prospect of recovering the losses. For a rational, profit-maximizing firm that is aware of what it is doing, this case would seem to be impossible. Yet it is precisely this case that some discussions of predation and recoupment appear to envision. On one hand, this might be expected when one is contemplating the significance of imposing an independent recoupment requirement, for it will be decisive precisely in cases in which predation is otherwise established but recoupment is disproved. On the other hand, the emphasis on this combination is surprising because attention to recoupment arose specifically due to an emphasis on the implications of rational, profit-maximizing behavior by firms, which, as noted, seems to rule this case out.⁸⁴ Taken together, this is a serious puzzle because the apparent conflict arises not in some isolated case of little relevance but in the core situations in which recoupment matters most.

This apparent focus on irrational or impossible scenarios in the name of rationality seems largely unnoticed and hence unexamined.⁸⁵ As will be explored here, such analysis seems to be (implicitly, and sometimes explicitly) built on the view that the alleged predator either has made a mistake or has willfully chosen to benefit consumers at its own expense. Moreover, it is thought to be important to exonerate such behavior so as to avoid discouraging it. The message seems to be that antitrust law must be careful to avoid punishing firms that are confused or think they are Santa Claus.

To lay the groundwork for further exploration, consider a stylized example in which there

falls, and if moreover (as suggested by the analysis here and in section B) that other analysis feeds back on the assessment of the likelihood that the case falls in one range or another, it is unclear what is actually being recommended.

⁸³See also *supra* section I.C (discussing triangulation and, in particular, the simultaneous belief in PP and \sim R even though $PP \Rightarrow R$ and $\sim R \Rightarrow \sim PP$).

⁸⁴See *infra* section V.A.

⁸⁵Aspects are sometimes noted in criticism, such as where the *Brooke Group* dissent favors believing the defendant firm's understanding of its own situation over the majority's, see *infra* note 209, but the notion that the underlying logic involves a fundamental inconsistency—and one that flies in the face of the purported motivation for the recoupment inquiry—receives little attention.

is a given (anticipated and actual) short-run profit sacrifice of 100.⁸⁶ The expected and actual long-run profit recoveries may fall in different ranges:

- Expected profit recovery exceeds 100 and actual profit recovery exceeds 100. Here, by any view, the recoupment condition is satisfied, so if there would otherwise be liability, liability indeed is to be assigned.
- Expected profit recovery exceeds 100 but actual profit recovery does not. That is, predation was a risky but ex ante profitable investment that, like many risky investments, sometimes does not pay off. The general view of this scenario is that the recoupment condition is satisfied—ex ante recoupment being sufficient—so liability attaches (if supported in other respects). For further discussion of this case, see section IV.C.
- Expected profit recovery is less than 100 but actual profit recovery occurs. Here, there is ex post recoupment, and the general view is that the recoupment condition is satisfied, so liability attaches (if it otherwise would). This case is likewise discussed further in section IV.C. Note here that, for a rational, profit-maximizing firm, this case (and that which follows) should never be observed. Even if the investment in predation did pay off, predation was not ex ante profitable and, by the standard view that defendants are presumed to be profit-maximizers, this behavior would not have been undertaken. An explanation for observing such a case and a corresponding rationale for assigning liability is that, if profit recovery did indeed occur, the tribunal's analysis leading it to believe that the act was ex ante unprofitable is likely to be incorrect. Firms know better than courts. And a defendant's expert who argues in litigation that its client was acting irrationally should be viewed with skepticism. (Analysis of some of the situations that follow will further illuminate this scenario.) Of course, another possibility is that the conclusion that profit recovery did take place may be the one that is in error, which is our next case.
- Finally, and our focus in this section: Expected profit recovery is less than 100 and actual profit recovery does not in fact occur (or we are examining the situation before it can be determined whether such recovery would in fact have occurred). Here, the recoupment condition fails. But what are we to make of such a case? As already noted, the existence of a short-run sacrifice of 100 with no prospect of sufficient recovery is puzzling. Taking the alleged predator to be rational—as courts, agencies, and commentators purport to do—this case should never arise. (And, as a consequence, it should be regarded as irrational for a court to believe that this is the correct interpretation of the facts.)

⁸⁶In all of the scenarios that follow, the evidence on all stated matters (notably, various of the figures for the imagined profit sacrifice and recovery) would, in actual cases, be uncertain and contested. This point reinforces the broader lesson that we will need to triangulate. The thought experiments clarify the sort of analysis that is required in the triangulation process.

If the firm is indeed rational, there are a number of possibilities with respect to this final scenario: The conclusion of insufficient recoupment because of a low (expected or actual) long-run profit recovery might be in error. In addition or instead, the conclusion that there was (or should have been expected to be) a short-run profit sacrifice of 100 might be in error. Articulating these possibilities leads us back to the emphasis on triangulation that began in section I.C. Central to that analysis is the presence of some (often substantial) uncertainty in the pertinent imputations and calculations. For example, perhaps the short-run profit sacrifice was only 50, so an expected long-run profit recovery of 75 would be sufficient to satisfy the recoupment condition. Another possibility is that there really was no short-run profit sacrifice to begin with (rather than the seemingly large one); that is, the defendant's strategy was in fact one of accommodation. This was examined in section B in this part and was the maintained competing hypothesis in part I when initially discussing triangulation.⁸⁷

Suppose instead that one eschews such triangulation, as courts and commentators often seem to have done, perhaps without realizing it. One then must adopt some alternative explanation for the defendant's behavior. Perhaps the weakest link when attempting to engage in triangulation in some cases is the rationality hypothesis itself.⁸⁸ This section now explores the competing explanations that seem closest to what is implicit in various discussions of recoupment that pose the logical conundrum that motivates this section.⁸⁹

⁸⁷Part of the dissent's argument in *Brooke Group*, for example, was that courts and juries can reasonably trust the defendant firm's views on such matters and hence, in accord with the first branch in the text, they can reasonably conclude that the long-run expected profit recovery was plausibly sufficient after all. *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 257–58 (1993) (Stevens, J., dissenting) (“I would suppose, however, that the professional performers who had danced the minuet for 40 to 50 years would be better able to predict whether their favorite partners would follow them in the future than would an outsider, who might not know the difference between Haydn and Mozart. In any event, the jury was surely entitled to infer that at the time of the price war itself, B & W reasonably believed that it could signal its intentions to its fellow oligopolists, see App. 61, assuring their continued cooperation.”); *id.* at 257 n.18 (“Judge Easterbrook has made the same point: ‘Wisdom lags far behind the market[.] [L]awyers know less about the business than the people they represent. . . . The judge knows even less about the business than the lawyers.’ Easterbrook, *The Limits of Antitrust*, 63 *Texas L. Rev.* 1, 5 (1984).”); *see also* Janusz A. Ordover, *Predatory Pricing*, in *THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW* 77, 82 (Peter Newman ed., 1998) (“[E]vidence that a price is below the pertinent floor should obviate the need to inquire whether recoupment is feasible or not: the firm's conduct reveals its belief that recoupment is possible. In that sense, the recoupment test substitutes the court's assessment of the likelihood of success for the independent business judgement of the alleged predator.”). One might have expected the majority to respond with the latter branch and, if it was to find no liability, with the argument that their confidence in negligible profit recovery cast in serious (fatal) doubt whether the defendant's price was predatory in the first place. But it took that fact to be established for purposes of the appeal—deeming there to be sufficient evidence from which the jury could have found below-cost pricing—which made this route appear to be unavailable. *See* 509 U.S. at 231. Hence, the only remaining possibilities were implicitly to suspend the laws of logic or to abandon the assumption that the defendant could be taken to be rational (which assumption was embraced elsewhere in the majority's opinion; *see id.* at 224). Interestingly, the dissent in *Matsushita* (which included all the justices who subsequently dissented in *Brooke Group*) was willing to contemplate suspension of the profit-maximization assumption as a factual matter in that case. *See infra* note 206.

⁸⁸Or the profit-maximization hypothesis, which the next footnote explores. *See also infra* note 206 (discussing the *Matsushita* dissent's argument that the factfinder should have been permitted to consider the possibility that the defendants engaged in predation that was not intended to maximize long-run profits); *Am. Academic Suppliers, Inc. v. Beckley-Cardy, Inc.*, 922 F.2d 1317, 1322 (7th Cir. 1991) (offering revenge as a possible explanation for below-cost pricing with no possibility of recoupment, and observing that “[r]esentment is not an antitrust violation”).

⁸⁹No claim is made regarding the extent to which these explanations are in fact what courts and commentators have in mind. My hunch is that the tensions are often insufficiently appreciated to demand any conscious reconciliation. (Perhaps a writer would have embraced the proffered explanations, or perhaps they would have been rejected, which may

Consider first the possibility that the defendant firm was mistaken. For example, suppose that it engaged in a predation strategy that would incur a short-run profit sacrifice of 100 in driving out or disciplining rivals but that it should have expected to recover only 70. That is, the recoupment condition was not satisfied. Moreover, we imagine that the firm undertook this strategy because it was making a mistake: perhaps it thought that the short-run sacrifice would only be 50, or that the long-run recovery would be 200. As often applied, it is suggested that the demand for recoupment requires that such a defendant be exonerated. But why this is so is hardly obvious. After all, the defendant thought that predation was *ex ante* profitable.

One explanation sometimes offered for refusing to assign liability in this case is that consumers experience a net benefit.⁹⁰ Specifically, they gain something presumed to be proportional to 100 up front and lose something of similar proportion to 70 at the back end.⁹¹ (Relatedly, it is supposed that consumer rather than total welfare is the objective in light of the fact, elaborated in section I.D, that even mistaken predation may entail a net loss in total welfare in both the predation period and the recovery period.⁹²) It is also sometimes mentioned that it is not the role of antitrust law to police firms' mistakes.⁹³

These ideas are suggestive, but only that. Note that the criminal law ordinarily punishes failed attempts that reflect a mistaken view of one's capacity to succeed.⁹⁴ Furthermore, Sherman Act Section 2 explicitly makes attempted monopolization an offense. And another form of mistake, involving negligence, is routinely a basis for tort liability, not a defense. The fact that victims may overall benefit rather than suffer from a defendant's error does distinguish the present situation from these others, but it still fails to provide a clear, affirmative basis for

have led to a reconsideration of the arguments that were advanced.) Nor are the explanations examined here exhaustive. Apparent irrationality could arise because of motivations outside the ordinary profit calculus. Due to agency problems in firms, particular actors may benefit from actions that fail to maximize the firm's profits. (For example, a manager may anticipate a larger bonus for expanding the firm's sales even if profits fall, or an executive may obtain higher compensation or status if the firm grows even at some cost to profits.) Actors may also suffer from cognitive biases (perhaps there is overoptimism that leads to underestimation of the duration of the predation period or overestimation of the likelihood of driving out rivals or the duration of the recovery period). One might also imagine that some actors (even owners) may act out of spite toward particular competitors. The likelihoods of such explanations are not considered further here, although some of the discussion to follow bears on whether liability would make sense in such circumstances. *See also* Joskow & Klevorick, *supra* note 3, at 233 n.50 (suggesting that some departures from profit maximization may raise the welfare costs of a failure to deter predatory pricing).

⁹⁰*See, e.g., Brooke Group*, 509 U.S. at 224 (in justifying the recoupment requirement, emphasizing that "unsuccessful predation is in general a boon to consumers"); ABA SECTION OF ANTITRUST LAW, MODEL JURY INSTRUCTIONS IN CIVIL ANTITRUST ACTIONS, 2005 EDITION, at C-52 (2005) [hereinafter MODEL JURY INSTRUCTIONS] (citing *Brooke Group* in a note for the proposition that "[t]he rationale for requiring proof of both below-cost pricing and a dangerous probability of recoupment is that the antitrust laws protect consumers not competitors, and low prices always benefit consumers").

⁹¹As explained in section I.D when discussing the consumer welfare consequences of whether the recoupment condition is satisfied, actual measures of consumer welfare (and total welfare) do not have a common or linear relationship with profits (including negative profits) in either the predation or recovery periods. This complication will be set to the side in the present analysis.

⁹²For further discussion of the choice of objective in this setting, see note 49.

⁹³*See, e.g., Frank H. Easterbrook, The Limits of Antitrust*, 63 TEXAS L. REV. 1, 24–25 (1984). The possibility that defendants' seemingly anticompetitive behavior may simply be mistaken—rather than anti- or procompetitive in the usually discussed ways—has received little attention in the literature. Some of the ideas developed in this section are suggested in an earlier, brief treatment. *See* Louis Kaplow, *Extension of Monopoly Power Through Leverage*, 85 COLUM. L. REV. 515, 548–50 (1985).

⁹⁴For further discussion of this connection, see section IV.C.

exoneration.

Note further that failing to exonerate defendants engaged in predation that, contrary to their own analysis, cannot really be expected to be profitable does not seem best understood as aiming antitrust enforcement at mistakes for purposes of providing a legal corrective where market discipline has proved to be deficient. Rather, it involves abstention from undertaking additional effort (and risking error) when assessing behavior that otherwise would be regarded as illegal (because ordinarily harmful) for the purpose of removing occasional mistaken behavior from the reach of liability. Another irony is that the suggested inappropriateness of punishing mistakes in this context is rationalized on the ground that losses born by the defendant itself should not be counted in the social calculus: consumers gain; defendants be damned. That is, the choice to disregard the defendant's welfare⁹⁵ is being invoked to exonerate defendants that would otherwise be held liable. (The apparent logic is: "Precisely because we don't care about you, we will protect you.")

Such musings on the propriety of punishing mistakes, which do not explicitly examine the consequences of doing so, are unlikely to provide useful direction.⁹⁶ The most straightforward, affirmative argument for exoneration might seem to be that these mistakes are beneficial (at least to consumers), rather than harmful, and the prospect of sanctions would discourage behavior that generates these consequences; hence, antitrust law should not condemn such mistakes. This line of reasoning gains further support from the emphasis in predation cases and policy analysis on the need to avoid chilling desirable behavior.

There is, however, a mismatch. Explicit discussions of chilling refer to discouraging procompetitive price reductions, such as those involved in accommodation or with investments of the sort examined in section A. But here we are addressing consciously predatory behavior that would be illegal (and harmful) but for the fact that the firm is mistaken about how much profit it will earn from its efforts.

Pursuing this difference further, the claim that punishing mistakes would deprive consumers of the concomitant benefits from ill-conceived predatory episodes assumes that the prospect of liability for these sorts of mistakes would discourage them. But we should ask why the prospect of liability in scenarios that firms *ex ante* do not believe they would ever find themselves would alter their incentives.⁹⁷ This incentive-based argument for exoneration appears to fail. Note, however, that it does not, on this account, become a reason in favor of liability either. Rather, it suggests that the prospect of liability for such mistakes is irrelevant. If this analysis was complete, one might choose how best to treat mistakes on administrative grounds: Perhaps they are infrequent and difficult to distinguish from ordinary predation, so they

⁹⁵For a firm, this refers to the welfare its owners, employees, or any others who would bear the incidence of liability.

⁹⁶*See generally* LOUIS KAPLOW & STEVEN SHAVELL, *FAIRNESS VERSUS WELFARE* (2002).

⁹⁷A further subtlety is that a rational firm might believe that it would sometimes make mistakes—after all, both individuals and firms with self-awareness realize that they are not perfect. It is probably more useful simply to assimilate this possibility into a firm's *ex ante* decision calculus that already recognizes uncertainty. That is, a firm contemplating predation (or any other strategy) will calculate costs and benefits on an expected basis, taking into account that prospects may be dimmer than they might wish. The exposition in the text defines mistakes relative to this benchmark: we are considering situations in which the firm's *ex ante* analysis—giving whatever weight to the downside it deems appropriate (reflecting, say, however much it may doubt the optimism or competence of some of its agents)—indicates that the strategy would be sufficiently likely to be profitable to have taken the action, and the factfinder is second-guessing that calculation.

are best ignored (that is, not allowed as a defense, via demonstration of a failure of the recoupment condition). Perhaps they are frequent and easy to identify, so exoneration due to an inability to recoup would save costs associated with the filing of ultimately unimportant cases.⁹⁸

The foregoing discussion oversimplifies in supposing that self-perceived rational, profit-maximizing firms would treat the prospect of exoneration of mistaken predation as irrelevant to themselves. Instead, if this defense (via a recoupment requirement) was anticipated to be important, firms might further believe that, when they act, there is some prospect that tribunals would (incorrectly) think that their apparent predation was mistaken and thereby immune from liability. This prospect, in turn, would tend to reduce both deterrence and chilling.

Start with deterrence. A firm that contemplated actual predation might reason *ex ante* that, whatever would otherwise be the likelihood that it would be found liable, this probability would be reduced if tribunals exonerate defendants that, as revealed by recoupment analysis, appear to have been mistaken. That is, a prospective predator might appreciate that it has some chance of convincing the tribunal, *ex post*, that it was mistaken in its *ex ante* belief that predation would be profitable. That prospect would reduce deterrence.⁹⁹

By similar logic, chilling would be reduced as well. Here, consider a firm that is choosing a nonpredatory strategy that it appreciates might be inappropriately challenged as predation and thus result in liability. With a defense of mistake (via a failure of recoupment), it has access to an additional means of exoneration: a tribunal that improperly classifies the firm's behavior as predatory might further be convinced that this erroneously identified predation was in turn a mistake on the firm's part. That prospect would reduce chilling.

Appropriate combination of these two considerations would, in principle, allow one to determine whether acknowledging and then exonerating seemingly mistaken predation would be

⁹⁸Here and throughout this section, it is useful to reflect on the likely frequency of what are being discussed as *ex ante* mistakes by firms. *See supra* note 97 (defining mistakes); *supra* note 89 (distinguishing agency problems and cognitive biases). One might dismiss the notion *a priori* on the ground that mistakes are rare (and that, when they do arise, agencies and tribunals are unlikely to be able to identify them reliably). But some also consider actual predation to be rare (whether because of the typical infeasibility of predation or because most predation is deterred). *See infra* section IV.A. Hence, the question is whether mistakes are relatively rare. But this relative notion further depends on the scenario one envisions; hence, the answer may depend greatly on the nature of the evidence. If the evidence consists mainly of price drops, complaining rivals, and a fuzzy indication that the alleged predator's costs seem high, we might readily suppose that the *tribunal* is likely to be mistaken if it finds predation, but that is not our question. Rather, the cases being contemplated (as elaborated below in the text) are ones in which there is strong evidence of a significant short-run profit sacrifice that seems best understood as involving predation (rather than a procompetitive investment), perhaps supported by internal evidence on the firm's own analysis of the situation. But there is also strong (external) evidence suggesting that, from an *ex ante* perspective, recoupment was highly implausible. Again invoking triangulation (as developed below), it may seem best to press further on the evidence: for example, if the internal analysis is not well supported by relevant information whereas the external, *ex post* recoupment assessment is, we should be more inclined to attribute the decision to mistake. As discussed in sections I.C and II.B, however, in many instances confidence in failure of the recoupment condition would instead lead us to conclude that the defendant's pricing was not predatory; and, in other cases, confidence that it was intended to be predatory would lead us to upset our tentative conclusion that recoupment was *ex ante* implausible rather than attributing the inconsistency to a mistake by the defendant.

⁹⁹In part, any resulting deterrence deficit might be rectified by enhancing enforcement in other respects, such as by raising sanctions. Typically, such offsets would also increase chilling. Addressing what mix of penalties, other enforcement dimensions, substantive legal rules, proof requirements, and other procedures is optimal for predatory pricing is beyond the scope of this article. For treatments that combine a number of these features in a general law enforcement context when there are concerns for both deterrence and chilling, see Kaplow, *Burden of Proof*, *supra* note 10; Louis Kaplow, *On the Optimal Burden of Proof*, 119 J. POL. ECON. 1104 (2011) [hereinafter *Optimal Burden of Proof*]; Louis Kaplow, *Multistage Adjudication*, 126 HARV. L. REV. 1179 (2013) [hereinafter *Multistage Adjudication*].

part of an optimal scheme for liability. A simple way to view this problem is to consider, for a given proposed threshold (tantamount to defining some set of cases in which recoupment was sufficiently dubious that one would exonerate the defendant despite otherwise strong evidence of predation), how often legal decisions would switch from liability to no liability. Then we would wish to know what portion of those changes (really, the anticipation thereof) would be in cases of actual predation (thereby reducing deterrence) and in cases of other, procompetitive behavior that appeared to be predatory yet in which recoupment was deemed lacking (thereby reducing chilling).¹⁰⁰ Following our decision framework, we could attempt to compare the resulting costs and benefits.

Another way to view the matter—which should, in principle, be equivalent if both methods are undertaken properly¹⁰¹—is in terms of triangulation, as outlined for a simpler setting in section I.C. As explained there and pursued in a different manner in section II.B on accommodation, when various findings are in logical tension, it is necessary to ascertain what evidence and which subsidiary findings are most compelling and, as appropriate, to adjust other inferences accordingly. Here we are contemplating cases in which there is both strong evidence of actual predation (which implies that the alleged predator did expect to recoup) and strong evidence indicating that the requisite profit recovery is quite unlikely to have been rationally anticipated. When favoring the latter over the former, we have been—following what appears to be implicit (and sometimes explicit) in writing by some courts and commentators—interpreting this as involving the imputation of mistakes to defendants.

One could instead ground a refusal to assign liability in such cases in a belief that the evidence contradicting recoupment is sufficiently strong to cast doubt on the inference, drawn from other evidence, that predation indeed occurred. Of course, this rationalization may or not be convincing depending on the nature of the different sets of evidence. And when there is, say, strong internal evidence that unambiguously indicates a predatory plan, predicated in part on an expectation of recoupment, one may be more tempted to attribute the defendant's behavior to mistake when one is also sufficiently certain that recoupment was actually implausible.

However one chooses to view the conclusion as a matter of inference and characterization, whether exoneration is appropriate in a particular class of cases depends fundamentally on its consequences. Failing to assign liability in the setting under discussion will reduce both deterrence and chilling somewhat. It is these effects that determine whether exoneration is optimal.

Instead of something akin to a mistake—which assumes that the defendant believed ex ante that it would recoup its short-run profit sacrifice—suppose now that our alleged predator incurs a short-run profit sacrifice of 100 *knowing* ex ante that there was no rational prospect of subsequently recovering the sacrifice. That is, it did not make a mistake. The notion that defendants know what they are doing seems more compatible with most discourse on the subject

¹⁰⁰Note that an agency or tribunal engaging in such analysis would, in part, be estimating the likelihood of itself making mistakes of various types and using those estimates as inputs to an analysis of whether it should recognize, in essence, a category of mistaken behavior by defendants.

¹⁰¹The reason for this will be suggested in the text that follows, which itself may be more fully understood in light of the discussion in section IV.B of how the decision framework is best viewed as a problem regarding the provision of incentives rather than the dictation of particular defendants' subsequent conduct.

of predatory pricing and recoupment.¹⁰² But if one adopts this alternative view—and believes that this is an important class of cases to be concerned with—it is now even harder to rationalize what is going on. Is it believed that many apparent predators are disguised Santas?¹⁰³ And that it is important as a matter of antitrust policy to avoid holding Santas liable?¹⁰⁴ Perhaps because the prospect of liability will deter such Santas from sacrificing their profits to stuff consumers’ stockings?

A key lesson is that, as per section I.A, it is quite important to articulate explicitly the competing explanations in order to analyze a case. This general point is applicable not just to recoupment but to all analysis. In this instance, by leaving the alternative explanation to illegal predation nebulous, analysis seems to have gone astray. As sections A through C of this part already demonstrated, the manner in which the recoupment condition helps distinguish illegal predation from various competing explanations is much more complex and varied than meets the eye. Sometimes the recoupment condition is not diagnostic, and it can even cut the wrong way (that is, stronger proof of recoupment can disfavor liability). And when it is diagnostic, the manner in which this is so is often fairly subtle and requires substantially more knowledge—regarding both whether the condition is satisfied and how that may be diagnostic—than is recognized.

In this section, we have seen that the implicit (and sometimes explicit) competing hypothesis is one that deviates from antitrust’s standard imputation of rational, profit-maximizing behavior to market participants, particularly large firms. This phenomenon is surprising: it appears to assume that tribunals are better at understanding industries and strategic investments than are firms themselves; it can be internally inconsistent; and it can be outright fanciful. Stepping back to the decision framework elaborated in part I, effective triangulation is often undermined because it is difficult to ascertain the appropriate inferences from various sets of sometimes-conflicting evidence when one has not articulated what one is purporting to infer in the first place.

E. False Positives Are Not Created Equal

In adopting a cautious approach toward the assignment of liability for allegedly predatory pricing, courts, agencies, and commentators express a strong concern for how the prospect of

¹⁰²Consider both the emphasis on intentionality and the view that firms know their own business prospects better than do outsiders, including judges and juries.

¹⁰³Kenneth Elzinga and David Mills emphasize that in *Brooke Group* “[t]he Court was not prepared to endorse a theory of philanthropic predation.” Kenneth G. Elzinga & David E. Mills, *Trumping the Areeda-Turner Test: The Recoupment Standard in Brooke Group*, 62 ANTITRUST L.J. 559, 576 (1994). However, neither they nor the Court articulate just what alternative theory they contemplate—that is, which is consistent with their acknowledgment of a substantial short-run profit sacrifice and the ex ante implausibility of an equally significant long-run profit recovery.

¹⁰⁴*See* *Advo, Inc. v. Phila. Newspapers, Inc.*, 51 F.3d 1191, 1200 (3d Cir. 1995) (“Such futile below-cost pricing effectively bestows a gift on consumers, and the Sherman Act does not condemn such inadvertent charity.”); *A.A. Poultry Farms, Inc. v. Rose Acre Farms, Inc.*, 881 F.2d 1396, 1401 (7th Cir. 1989), *cert. denied*, 494 U.S. 638 (1990) (“Price less than cost today, followed by the competitive price tomorrow, bestows a gift on consumers. Because antitrust laws are designed for the benefit of consumers, not competitors, . . . a gift of this kind is not actionable.”); Leslie, *supra* note 17, at 1709, 1742 (“Courts and commentators routinely praise the first phase of predatory pricing, in which the predator charges a price below cost. Judges characterize this as a gift to consumers that antitrust law should be loath to penalize or deter.”); *see also supra* note 50 (further discussing Leslie’s views on the subject).

false positives may chill procompetitive, welfare-increasing price competition.¹⁰⁵ In subsequent analysis of particular aspects of predatory pricing, this concern is implicitly treated as uniform and substantial; it is taken as given, looming in the background. However, sections A–D enumerate a variety of competing explanations for allegedly illegal predation that differ in many ways. Hence, it should come as no surprise that false positives are not created equal. Moreover, the welfare consequences of the false positives that most have in mind in advancing cautious predatory pricing rules are qualitatively and quantitatively different from those of the false positives that are sometimes at stake in particular cases.

The most commonly envisioned type of false positive seems to arise from the assignment of liability when the defendant’s pricing actually involved an accommodation of rivals. Within this category of explanation for allegedly predatory pricing, the social costs can differ considerably. As the literature explains, pricing that involves short-run profit maximization may sometimes even reduce welfare.¹⁰⁶ Accordingly, optimal liability determinations should in principle recognize the substantial variation in the costs of assigning liability, which is to say, they should account for how some of the evidence in a given case bears not only on classification—predation versus accommodation—but also on the magnitude of this error cost.¹⁰⁷

Moreover, sections A–D indicate that there exist qualitatively different explanations for what might appear to be illegal predation: procompetitive explanations, legal predation, and mistakes—as well as accommodation. Even taking averages for the chilling costs within each category, there is substantial heterogeneity in chilling costs across these categories. Chilling the promotion of new products can be much more costly than is the chilling of accommodation. By contrast, chilling legal predation may well be socially desirable. And when it is not, the harm of such chilling may be substantially less than that from chilling accommodation or the types of procompetitive behavior examined in section A. Thus, it may be much more socially costly to chill Amazon’s use of promotional pricing when entering a new product line or Walmart’s short-run profit maximization when entering new geographic markets than it would be to chill an airline’s predatory pricing—which succeeds in driving out a low-cost competitor—when the alleged predator’s price was slightly above some deemed cost measure. Section D further

¹⁰⁵See, e.g., *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 226–27 (1993) (“[T]he costs of an erroneous finding of liability are high. [T]he mechanism by which a firm engages in predatory pricing—lowering prices—is the same mechanism by which a firm stimulates competition; because “cutting prices in order to increase business often is the very essence of competition . . . [,] mistaken inferences . . . are especially costly, because they chill the very conduct the antitrust laws are designed to protect.” *Cargill*, . . . (quoting *Matsushita* . . .). It would be ironic indeed if the standards for predatory pricing liability were so low that antitrust suits themselves became a tool for keeping prices high.”).

¹⁰⁶For example, it may drive out less efficient competitors that would, if they remained present, sufficiently discipline the dominant firm’s pricing as to increase total welfare, or at least consumer welfare. In such instances (which might instead be classified as legal predation), a chilling cost would actually be a social benefit.

¹⁰⁷This point supplements the discussion in section I.D of how recoupment analysis itself may bear on error costs; there, the emphasis was on how the benefits of deterring actual predation can vary substantially. More broadly, one should consider how various aspects of the analysis of recoupment (and predation as a whole) bear on error costs. For example, the ease of entry in the recoupment period is often cited as a reason to believe that recoupment is implausible. (Whether and when this argument makes sense is elaborated in section III.A.) However, the ease of entry also bears on the magnitude of errors. As explained in section I.D, the difficulty of recoupment suggests that the social harm conditional on failing to deter particular predatory behavior may be small, reinforcing the argument against liability. On the other hand, the ease of entry may suggest that chilling costs are also low because, if the dominant firm does not lower its prices as much, losses to consumers may be mitigated by entry. (Total social costs could rise, however, to the extent that entrants are less efficient producers than is the dominant firm.)

suggests that it is unclear how much chilling of mistakes would actually occur as a consequence of assigning liability or, conditional on incentive effects arising, how harmful they would be, on net.¹⁰⁸

Analytically, most of the foregoing is straightforward once one recognizes the large qualitative variation in competing hypotheses and hence in the character of possible false positives. It is nevertheless helpful to elaborate on the cost of false positives involving legal predation in particular, which relates to a more general point about the nature of legal rules. In settings in which the underlying rule is a consciously chosen proxy standard, such as with predatory pricing rules that contemplate a zone of legal predation, one should expect error costs to differ from those under a precisely targeted rule. A common rationale for such circumscribed predatory pricing rules is that, even if an additional penumbra of conduct is often undesirable, it should not be deemed illegal because, if it was, the associated chilling costs from the prospect of mistaken imposition of liability *at the outer boundary of that broader rule* would be great. Granting such a view, it must be recognized that, when considering the boundary between illegal and legal predation—which is notoriously difficult to identify under cost-based tests because of the challenges in measuring a defendant’s costs—mistakes *at this inner boundary* are not as costly as mistakes that would result in attempting to police the outer boundary between what is deemed to be legal predation and accommodation.

A rough but perhaps more intuitive way to restate the idea is as follows: Suppose that one did decide to penalize all predation that reduced some stated measure of welfare. Then, in close cases, one should perhaps lean heavily toward exoneration due to the concern for chilling pricing that is not truly predatory in any sense. Compare this scenario to that in which one limits the legal proscription to a narrower subset of predation, implicitly legalizing a range of predation that may be harmful. Then, in close cases, one should perhaps lean toward liability because borderline false positives involve actual (although formally legal) predation, lying just outside the illegal subset. This idea can also be understood as a natural outgrowth of the incentive provision approach sketched below in section IV.B: In attempting to determine an optimal liability rule, one should consider the consequences for ex ante behavior of varying slightly any contemplated threshold (here, corresponding to the legal rule defining predation). If one starts from a threshold that is rather generous to liability, tightening the rule somewhat may well be desirable with respect to the tradeoff between deterrence and chilling, but if one starts from a strict threshold, then loosening it at the margin may be optimal.

Sections A–D emphasize the importance of identifying with some specificity the actual nature of both anti- and procompetitive explanations for alleged predatory pricing, mainly for purposes of guiding the triangulation process when engaging in classification. In this section, by contrast, the point is that specifying the competing explanation to illegal predation can be quite important for purposes of assessing the social costs associated with the mistaken imposition of liability.

To round out the analysis, we should recognize that false negatives are not created equal either. For example, failing to deter predation that generates a reputation for toughness in many

¹⁰⁸See also *supra* section I.D (discussing how the magnitude of error costs depends on what is taken to be the objective of antitrust enforcement); *supra* note 49 (addressing the tension among welfare standards wherein production efficiency is sometimes invoked to support cost-based predation tests whereas consumer welfare is the standard used in advocating that liability should be limited to settings with recoupment, notably, in arguing that failed or mistaken predation benefits consumers overall even if efficiency is reduced).

markets may be much more costly than failing to deter predation with more limited effects. Taken together, we can see that fuller specification at the outset of competing explanations—both anti- and procompetitive ones—is all the more important in the conduct of predatory pricing analysis.

III. Market Power

Parts I and II address how, in principle, recoupment analysis should operate, with particular attention to the problem of classification. This part turns to market power. Section A explores the analytical relationship between market power and recoupment. This subject is natural to contemplate in light of the fact that the two inquiries are generally seen to involve the examination of similar factors in similar ways.¹⁰⁹ Moreover, the relationship is also of interest given the doctrinal uncertainty concerning the connection between the two inquiries (which is elaborated in section V.A). Section B then considers other ways that market power may be relevant to optimal determinations of liability for predatory pricing.

A. Analytical Relationship Between Market Power and Recoupment

It is helpful to restate the initial version of our recoupment condition from section I.B:

$$\delta^{pred} (\pi^{accom} - \pi^{pred}) < \delta^{monop} (\pi^{monop} - \pi^{accom}).$$

Market power as such does not appear in this inequality. Nevertheless, a moment's reflection suggests that market power does bear on the profit terms. Suppose that greater market power is associated with higher profits and, moreover, that all of the profit terms rise with market power

¹⁰⁹This connection seems more often to be recognized in commentary on competition law in the European Union than in discussions about U.S. antitrust law. See *DG Competition Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses* ¶ 97 (Dec. 2005) [hereinafter *Discussion Paper on Article 82*], <http://ec.europa.eu/competition/antitrust/art82/discpaper2005.pdf> (Predatory pricing “can normally only be effective and profitable if a company has already substantial market power on the market in question. In order for predation to be abusive under Article 82 the exclusion should be instrumental in protecting or strengthening the predator’s dominant position and thereby allow the predator to return to or obtain high prices afterwards. In a competitive market with many competitors the exclusion of some of them will in general not lead to a sufficient weakening of competition so as to allow the predator to recoup the ‘investment’. Also in a market with only a few but strong competitors such an exclusionary strategy is unlikely to succeed.”); *id.* ¶ 122 (“As dominance is already established this normally means that entry barriers are sufficiently high to presume the possibility to recoup. The Commission does therefore not consider it is necessary to provide further separate proof of recoupment in order to find an abuse.”); ROBERT O’DONOGHUE & JORGE PADILLA, *THE LAW AND ECONOMICS OF ARTICLE 102 TFEU*, at 317 (2d ed. 2013) (“Thus, the prevailing market conditions that contribute to dominance may also offer a good indication that rivals’ exclusion will lead to higher prices in [the] future, and that recoupment is therefore probable.”); EKATERINA ROUSSEVA, *RETHINKING EXCLUSIONARY ABUSES IN EU COMPETITION LAW* 167 (2010) (“[T]he relevant considerations taken into account in determining recoupment are by their nature identical with the considerations relevant in finding dominance: the market power of the undertaking, the market power of competitors, and the presence of barriers to entry. Thus, the differences between the condition for dominance and recoupment are not of a qualitative nature. It is rather the degree of market power . . . which differentiate[s] the conditions for recoupment from dominance.”).

by the same proportion.¹¹⁰ In this case, it is evident that the level of market power would have no effect on whether the condition held because increased market power would raise both sides of the inequality by the same factor. Hence, for market power to be relevant, it must influence the profit terms differentially.¹¹¹

One natural candidate is π^{monop} , which is most distinctively (and positively) associated with the level of market power that would exist once the allegedly predatory pricing has had its effect.¹¹² If market power in this sense is higher, π^{monop} alone may rise, or it may rise relatively more than the other profit terms do. As a practical matter, this level of market power may be susceptible to direct estimation primarily in cases in which the strategy has been effective,¹¹³ but in those cases it might make more sense to estimate the resulting profits themselves (a point elaborated below). In any event, we have a notion of market power that does bear positively on liability in this instance, supposing that the recoupment condition is diagnostic in the ordinarily assumed fashion.

Next consider π^{accom} , which is most distinctively (and positively) associated with the level of market power that would obtain in the absence of predation.¹¹⁴ To the extent that accommodation does not result in perfect competition, prices would be somewhat elevated, and a firm that adopts a strategy of accommodation would tend to profit more the greater was the level of market power in that scenario. When considering an allegedly anticompetitive act prospectively (as it often might be in attempted monopolization cases involving allegations of predatory pricing), the observed level of market power would be the pertinent amount. Note that in this case, the higher is market power, the less likely our constraint is to be satisfied. There are two reasons for this. First, the greater is π^{accom} (which is implied by greater market power in this sense), ceteris paribus, the larger is the profit sacrifice (the left side of the condition). Second, the greater is π^{accom} , ceteris paribus, the smaller is the future increment to profitability from a given, achieved level of π^{monop} (the term in parentheses on the right side of our formula).

This perhaps initially counterintuitive result—that a higher level of market power (in this

¹¹⁰And assume further and throughout this section that market power does not bear on the two weighting factors, keeping in mind that the analysis here is meant merely to be suggestive. Some of the discussion in section B about other ways in which market power may be relevant could be assimilated into these weights, appropriately interpreted.

¹¹¹As mentioned in section I.C, however, the degree to which recoupment succeeds or fails may also be relevant. Interestingly, under this hypothetical assumption, greater market power increases this magnitude when the condition holds, but, when the condition fails, it would make it fail to a greater extent, which has the opposite implication.

¹¹²This understanding of market or monopoly power in predatory pricing cases is consistent with *Brooke Group's* usage in two passing mentions of these notions. See *infra* note 180.

¹¹³If the practice has not yet had its effect (or a challenge involves a practice that failed but was argued, *ex ante*, to be likely to have a posited anticompetitive effect), then a measurement of extant market power would tend to involve estimation of a lower level of market power, which is not the level that would be predictive of profits conditional upon success—the profit term currently under discussion. To move from that prevailing measure of market power to the level of market power conditional on success would involve ascertaining the extent to which the act, if successful, would raise market power.

¹¹⁴One might also consider π^{pred} . Here, it is familiar that a higher market share during the predation period is associated with a greater short-run sacrifice to the extent that price is below marginal cost. Interestingly, we have a familiar component of market power that, when higher, makes recoupment more difficult. Like the other cases in the text, what is relevant in this instance, as noted, is a component of market power rather than market power as such. Moreover, this component, market share, is endogenous to the alleged predator's strategy and rivals' responses. In addition, calculation of π^{pred} , as explained in section I.B, depends on the quantity produced, not the market share *per se*, making the relevance of this component of traditional market power measures even more attenuated.

sense) cuts against liability (assuming that the recoupment condition is indeed diagnostic in the standard way)—has a straightforward intuitive basis. When the level of market power in the absence of predation’s impact is higher, the firm’s situation is more profitable in the absence of predation, which makes predation less attractive. Of course, some factors (less elastic market demand) raise the other profit terms as well. Importantly, some factors bear differentially on market power with and without predation.¹¹⁵

One such factor is of particular interest in this respect. Predation may be employed in order to create what may be termed a behavioral or strategic barrier to entry. That is, rivals will exit and prospective entrants will decline to enter if a predator’s conduct leads them to expect that their attempts to compete will prove to be unprofitable due to anticipated predatory pricing. Note that the erection of such a behavioral barrier to entry is especially valuable when other, preexisting entry barriers (whether technological, economic, or regulatory) are weak. And, when that is so, it follows that there will exist a lower level of market power in the absence of predation. It is this constraint on the exercise of market power due to the insufficiency of preexisting entry barriers that makes predation likely to be profitable in the first place. Hence, it is unsurprising that, when market power before predation is lower for this reason, the recoupment constraint is more, not less, likely to be satisfied.

This observation—which has a long history in the economics literature and antitrust commentary on predatory pricing¹¹⁶—is both interesting and disturbing. In attempted

¹¹⁵Specifically, in plausible models a lower market demand elasticity will raise π^{monop} by more than it raises π^{accom} .

¹¹⁶This idea is often attributed to B.S. Yamey, *Predatory Price Cutting: Notes and Comments*, 15 J.L. & ECON. 129, 142 (1972): “The point is frequently made in the literature on predatory pricing that the practice makes little sense where entry into the industry or trade in question is easy. However, the Mogul [Steamship] story serves to illustrate a general point, namely, that predatory pricing, or the threat of its use, may itself operate as an effective hindrance to new entry even in situations where the conventional barriers to entry are weak or absent. In this respect predatory pricing, like certain other pricing practices, should be given a place in the analysis of barriers to entry.” It has been elaborated in the manner presented in the text by Easley, Masson & Reynolds, *supra* note 57, at 456: “By simply making life tough for entrants the monopolist may intimidate future entry. By the same token, large entry barriers need not be present for predation to be an optimal strategy. Indeed relatively low entry barriers and the threat of rapid mass entry may motivate a monopolist to artificially manufacture an additional entry deterrent through predation.” See also U.S. DEP’T OF JUSTICE, *supra* note 57, at 57; ALISON JONES & BRENDA SUFRIN, *EU COMPETITION LAW* 359 (5th ed. 2014); Bolton, Brodley & Riordan, *supra* note 82, at 2265 (“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.”); Miguel de la Mano, Renato Nazzini & Hans Zenger, *Article 102*, in *THE EU LAW OF COMPETITION* ¶¶ 4.379–4.383 (Jonathan Faull & Ali Nikpay eds., 3d ed. 2014) (“But, recoupment is not systematically related to dominance, which measures the level of market power of the predator before or during the predatory attack. . . . Moreover, the presence of a dominant firm indicates that the degree of competition is already weakened. As a result, such a dominant firm may earn limited gains from further increasing its grip on the market.”); Thomas G. Krattenmaker, Robert H. Lande & Steven C. Salop, *Monopoly Power and Market Power in Antitrust Law*, 76 GEO. L.J. 241, 254–55 (1987) (“Analysis of market power often is treated as a threshold issue in antitrust litigation, to be carried out in an identical fashion irrespective of the defendant’s alleged conduct. Indeed, certain antitrust standards call on courts to evaluate the market power of the defendant before any analysis of the defendant’s conduct is undertaken. . . . This procedure is seriously flawed for a court concerned with the exercise of Bainian market power by a defendant engaged in exclusionary conduct. . . . It is the exclusionary conduct that creates the market power being evaluated, not the other way around.”) The view that a lack of entry barriers negates predatory pricing—which is entailed by requiring monopoly power (or a dangerous probability thereof) and, moreover, demanding that such a showing include proof of entry barriers—supposes, for example, that the predation itself may succeed in driving out an existing rival (that often has already sunk some costs) but that this success would not deter the entry of future rivals (who have not yet sunk any costs). In that case—which might arise, for example, if prospective new entrants would have access to a lower-cost technology unavailable to the existing rival—no behavioral entry barrier would be

monopolization cases as well as some involving purported monopolization itself, measurement of market power may effectively involve estimating its level before (or abstracting from) the impact of the alleged predation. In that event, ordinary demands for greater market power may, with respect to recoupment, cut against liability rather than in favor of it. It is ironic that recoupment analysis is motivated to be a check on the possible irrationality of purported explanations for a defendant's behavior, yet it coexists with standard market power analysis that may take a central reason that predation may be profitable and hence rational to militate against liability.¹¹⁷

As we can see (and as will be elaborated in section V.B), the tendency in some antitrust doctrine and discourse to employ structured decision rules, under which aspects of analysis are formulated as distinct elements, can result in a siloing of analysis that hinders triangulation and can lead us badly astray. Unfortunately, this problem is frequently present with respect to the treatment of market power requirements, as we can see here; and predatory pricing analysis potentially suffers even more to the extent that the comparison of price to cost and the assessment of recoupment are themselves treated in a siloed fashion, as discussed previously.

With regard to market power more generally and also, as this article emphasizes throughout, for recoupment, proper analysis often involves a combination of disaggregation and triangulation. That is, in order to assess whether liability should be assigned, one needs to look at particular factors—such as the firm's cost structure, the nature of demand, and the conditions of entry—in order to assess the likelihoods of different explanations for allegedly anticompetitive conduct (and also, as emphasized elsewhere in this article, the magnitudes of the effects associated with different explanations).

Accordingly, having suggested the channels by which market power—the most recurring aspect of antitrust inquiries generally—may influence recoupment, we should further consider whether, even when one or another sense of market power is correlated with components of the recoupment condition, market power analysis is a sensible input to recoupment analysis. The very fact that different senses of market power—here, the level with versus without the effects of the alleged predation—have different (and potentially opposite) implications should give us pause. Upon closer examination, the linkage is even more jumbled, so much so that market power analysis as such is probably unhelpful. This point is striking because, at first sight, the monopoly power and recoupment requirements appear to overlap a great deal.

We have seen that, on one hand, market power does not appear directly in our recoupment condition, but, on the other hand, various senses of market power tend to be

erected and, as a consequence, π^{monop} would be low as well.

It is also notable that the modern economics literature on predatory pricing discussed in section IV.A is explicitly strategic, in a manner that makes considerations such as the present one harder to miss.

¹¹⁷The same reversal of sound logic can arise in connection with the direct and familiar suggestion (without regard to any independent market power inquiry) that successful recoupment requires entry barriers and hence a lack thereof warrants rejection of a predation claim due to the failure of recoupment. *See, e.g., Matsushita Elec. Industrial Co. v. Zenith Radio*, 475 U.S. 574, 591 n.15 (1986) (stating that “[r]espondents offer no reason to suppose that entry into the relevant market is especially difficult, yet, without barriers to entry, it would presumably be impossible to maintain supracompetitive prices for an extended time,” but in a context in which it was imagined that recoupment would take decades); AREEDA & HOVENKAMP, *supra* note 39, at 51 (“[W]e suggest . . . that the recoupment requirement demand only a showing of significant barriers to entry and sufficient output constraints on existing rivals to warrant an inference that a monopoly, if created, would be durable.”). This danger has been noted by prior commentators. *See sources cited supra* note 116.

correlated with particular terms in that condition. When relevant components—like our profit terms here—are difficult to measure, it may seem natural to seek proxies for them, like market power. However, this approach is helpful only if the proxies are themselves more readily observable than are the pertinent underlying factors.

It turns out that this is false in the present setting. Although components feeding into the measurement of market power do influence the profit terms, the manner of influence on those profit terms is different from how they influence market power (even when considering the appropriate sense, as discussed earlier in this section). Therefore, one should examine those components directly for purposes of estimating the profit terms in the recoupment condition, cutting out the “middle man” of market power. Traits of the demand curve and of a dominant firm’s cost curve influence market power. And they influence the profit measures. But different basic elements tend to influence each differently. Sometimes they have different quantitative effects: raising one component might, for example, have the same effect on a market power measure as raising another component would have, but the former may have twice the effect as the latter on the corresponding profit term. And sometimes they have different qualitative effects: raising a component may imply greater market power but lower profits. That is, market power is not a sufficient statistic for profits.¹¹⁸

In addition to these analytical points, one should keep in mind that it is not possible in most instances simply to “observe” market power, either that which presently exists or that which might exist under various hypothetical conditions. Hence, with respect to assessing recoupment, there is no point in combining all of the (imprecisely estimated) components in one way, to measure market power, for the purpose of then using that intermediate measurement to make an (additionally noisy) inference about the profit terms in our recoupment condition. Rather one should use the estimates of the components directly to draw the best inferences one can about the profit terms and hence about recoupment. However imperfect that direct inference might be, interposing market power as an intermediate step in the process leads to a worse inference because the pertinent information is scrambled along the way.

¹¹⁸If a given measure of market power was a sufficient statistic for a given measure of profit, then the ratio of any pair of derivatives of the market power measure with respect to each of two underlying parameters would be the same as the ratio of the corresponding derivatives of the profit measure. If this were not so, then when we change the two pertinent parameters in a way that keeps market power constant, profits will change, so the same level of market power could be associated with a wide range of profit levels. And conversely. To assess whether this property holds, consider the standard model of a dominant firm that supplies a homogeneous good and is constrained by a competitive fringe of rival firms. See, e.g., Kaplow & Shapiro, *supra* note 49, at 1081; William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 944 (1981). Simplify further by assuming that the dominant firm has constant marginal cost and faces linear market demand and a linear aggregate supply function for the rivals. Define the market power of the dominant firm by the Lerner index, and now compare that formula to one for the dominant firm’s profits. The assumption of constant marginal cost (and no fixed cost) means that the firm’s profits equal the Lerner index times firm revenue (because the Lerner index indicates, in this special case, the fraction of revenue that is profit). To assess our property for market power to be a sufficient statistic, we can take derivatives of the Lerner index and of the expression for profits with respect to each of the five underlying parameters: two slopes (of the demand curve and of rivals’ supply curve), two intercepts (of the same two curves), and the dominant firm’s marginal cost. Each of these three sets of derivatives involves substantially different terms for the Lerner index and for revenue, and hence for the Lerner index and for the dominant firm’s profits. That is, in our simple, standard, and in various respects favorable special case, the requisite conditions for market power to be a sufficient statistic for profits are sharply violated.

B. Market Power's Relevance in Other Ways

The demand for monopoly power or a dangerous probability thereof, despite its routine invocation in monopolization and attempted monopolization cases, often is examined in a vacuum rather than integrated with the analysis of the allegedly exclusionary practice.¹¹⁹ Accordingly, the true potential relevance of market power in particular settings is often obscure. Predatory pricing is no different. Section A addressed recoupment in particular because it and market power are each understood by reference to similar factors. This section considers whether market power may be relevant in other ways, which seems natural to examine because the monopoly power requirement was well established long before any explicit attention was paid to recoupment.¹²⁰ In the course of the discussion to follow, it is important to keep in mind the significant caveat noted in section A: even when market power does appear to be relevant in one way or another, it is necessary to inquire further whether it is market power as such that matters or whether instead one or more factors that bear on market power are themselves the pertinent determinants.¹²¹

The proper way to conduct such an inquiry is given by the decision framework in section I.A, which considers questions of characterization and assessments of the magnitudes of harm and benefit conditional on the behavior under scrutiny being anti- or procompetitive, respectively. Recoupment has been addressed in large part with respect to characterization, but market power may be relevant to understanding the nature of allegedly predatory behavior in other ways.¹²² Without considering all motivations for a monopoly power requirement¹²³ or all the ways that market power might be relevant in predation cases, it is useful to examine some particulars.

First, it might be thought that market power may bear on the likelihood that, and speed with which, predatory prices would discipline or dispose of rivals.¹²⁴ The modern literature on predatory pricing, discussed in section IV.A, identifies settings in which predatory pricing might

¹¹⁹For further elaboration of this doctrinal dimension and its relationship to recoupment, see section V.A.

¹²⁰It is possible, however, that the unarticulated relevance of market power lies primarily in the manner in which it may illuminate the recoupment condition, keeping in mind that the recoupment notion is generic in that any explanation (whether anti- or procompetitive) for a rational profit-maximizing firm's behavior that involves incurring some cost in the short run implies that the firm should expect to recover its investment in the long run.

¹²¹See, e.g., Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs To Achieve Power over Price*, 96 YALE L.J. 209, 271 (1986) ("[S]uccessful exclusion is more likely when the predator is large and the excluded rivals are small. The gains and losses from exclusion depend on the bidders' relative market shares as well as on the price received. For this purpose, then, market share is significant for its own sake, not simply as a proxy for traditional market power.").

¹²²The present discussion of classification is abbreviated in a number of respects. One is that, as emphasized in parts I and II, classification is a comparative exercise; hence, market power could illuminate classification because it bears on procompetitive explanations as well. Beyond its relevance via recoupment (see *supra* section II.A), however, this key feature is submerged here.

¹²³Screening is a commonly advanced function that is not considered directly here, although to a substantial extent the proper use of market power as a screen should itself be understood substantially with respect to the various ways that market power is relevant to optimal liability determinations. See also *infra* section V.C (on the use of recoupment analysis to screen cases).

¹²⁴As a matter of taxonomy, recall from note 5 that this article generally uses recoupment to refer to whether successful predation would be profitable and not to include whether predation would effectively deal with rivals in the first place (although *Brooke Group* and some subsequent courts use the term to refer to both components).

be effective. Relevant factors variously include entrants' uncertainty about the dominant firm's cost structure, the nature of sunk costs, and asymmetries in access to capital. Although some of these factors may some of the time relate to some aspects of market power in one or another sense—for example, conditions of entry relate to market power—it does not appear that market power in toto, as conventionally defined, is a particularly informative way to combine information to assess these factors.¹²⁵

Regarding classification, market power might also illuminate the applicability of various price-cost tests for predation. It is typically assumed that price is observable but that cost is hard to determine. As is well known from decades of literature in industrial organization economics, there is a relationship between price, cost, and market power. Indeed, with the standard Lerner index measure of market power (the portion of price that is in excess of marginal cost), this is so as a matter of definition.¹²⁶ It would, however, be circular to use cost (along with price) to determine market power, in order to then use it to determine cost. There are other empirical strategies to attempt to measure market power, but they typically either make assumptions about cost or involve the empirical estimation of cost.¹²⁷ Accordingly, it may be that methods used to measure market power might sometimes be closely related to methods that one would use to infer cost. But, again, a separate effort to measure market power does not appear to be particularly helpful for measuring cost.

Consider next the relationship between market power and the potential magnitude of anticompetitive harm if indeed the defendant's behavior was predatory. Section I.D considered how recoupment bears on the magnitude of harm, but the major reason that recoupment seemed relevant relates fairly directly to market power. Specifically, greater long-run profit recovery is associated with a higher level of market power conditional on predation's success, and that in turn is positively related to the anticompetitive harm that would result. More precisely, the degree to which predation increases market power is substantially relevant, but note that this increment refers not to the *level* of market power (with or without the effects of the predation taken into account) but rather to the *difference* between the level of market power when predation is successful and the level of market power without predation. By contrast, most traditional market power inquiries in monopolization cases look at the level of market power.

Nevertheless, the level of market power has further relevance, depending on whether the concern is with total welfare or just consumer welfare (recalling another aspect of section I.D's discussion).¹²⁸ Total welfare in a simple setting—confining attention here to the exercise of market power in the recovery period¹²⁹—depends on how high the price was that a firm is elevating. When a price is raised slightly from a perfectly competitive level (marginal cost),

¹²⁵This conclusion is further suggested by the fact that the modern economics literature on predatory pricing does not pay much attention to market power. Indeed, this inattention pervades the industrial organization literature on exclusionary practices.

¹²⁶See, e.g., 2B PHILLIP E. AREEDA, HERBERT HOVENKAMP & JOHN L. SOLOW, *ANTITRUST LAW* 118–20 (4th ed. 2014); Kaplow & Shapiro, *supra* note 49, at 1080; Landes & Posner, *supra* note 118, at 939–41.

¹²⁷See, e.g., Jonathan B. Baker & Timothy F. Bresnahan, *Empirical Methods of Identifying and Measuring Market Power*, 61 *ANTITRUST L.J.* 3 (1992) (surveying techniques).

¹²⁸See Kaplow, *Welfare Standards*, *supra* note 47, at 18–25.

¹²⁹During the predation period, the deadweight loss will again reflect the price-cost difference, but for below-cost pricing this will obviously reflect the quantity increase rather than decrease. For consumer surplus, since only price matters, the analysis is qualitatively the same (and the tradeoff between consumers' gain in the predation period and loss in the recovery period was already addressed in section I.D).

there is essentially no deadweight loss, and the level of deadweight loss rises at an increasing rate as price rises ever further. (The core intuition is that the deadweight loss from a one unit reduction in output is price, which represents the consumer's valuation, minus cost; hence, the higher the price at which the quantity is lost, the greater the welfare cost.) Hence, the greater is the level of market power, the greater tends to be the deadweight loss from a given increase in price.

By contrast, consumer surplus does not have this feature. For every dollar increase in price, consumers who continue to purchase the good lose one dollar, however high the price was to begin with. Actually, because a higher initial price indicates a lower initial quantity, a higher initial price is associated with a smaller reduction in consumer surplus for a given price increment. So a higher level of market power is associated with less harm in this sense. However, one can determine the loss in consumer surplus from a given price increase by knowing the quantity without knowing cost (unlike with deadweight loss), so neither market power (which, as explained, reflects the difference between price and cost) nor cost itself needs to be measured for this purpose.

Finally, we can ask how market power may bear on the magnitude of the cost of mistakenly finding liability. Although the cost of false positives is a central consideration in antitrust law and has been a major factor in formulating predatory pricing rules, refinement of just what those chilling costs are and how they may relate to market power is a neglected subject. In this article, much attention has been given in part II to the different types of false positives, with an assessment of differences in their welfare costs in section II.E. For now, the question is how the level of market power may be relevant to these different magnitudes.¹³⁰ In the case of procompetitive investments, as suggested in section II.A, they tend to involve positive recoupment. Here we can add that the more value they generate, the more post-investment market power they will tend to create. Hence, in a manner similar to how market power bears on the costs of actual predation, it may be indicative of the magnitude of the benefits of procompetitive behavior (although market power is not itself the measure of such benefits). Regarding the costs of chilling accommodation, section II.B previously suggested that this concern may be greater when market power is higher. For legal predation, the analysis is more like that already presented for illegal predation (keeping in mind that chilling legal predation may well be beneficial, akin to deterring illegal predation).¹³¹

IV. Future Directions in Predatory Pricing Analysis

Parts I–III focus on recoupment, but much that has been said—particularly about the need for explicit identification of both anti- and procompetitive explanations for the practice under scrutiny—bears on a broader range of issues related to predatory pricing. And, conversely, much modern economic analysis of predatory pricing and also of optimal law

¹³⁰Given the murky nature of the explanations explored in section II.D involving mistaken predation, the relationship between market power and the magnitude of pertinent welfare effects for that possibility is not considered here.

¹³¹A central difference regards the inefficiency associated with the quantity change during the predation period. Note that, once again, if the focus is entirely on consumer welfare, the classification difference that depends on the predator's costs, taking pricing as given, is not directly relevant.

enforcement more broadly pertains to how recoupment should be analyzed. Sections A and B examine, respectively, these two larger literatures to see how they further illuminate the foregoing analysis. Section C compares and contrasts *ex ante* and *ex post* perspectives on recoupment, in the process linking the analysis of predatory pricing to that of the optimal treatment of failed attempts.

A. Modern Economics of Predatory Pricing

The relationship between modern industrial organization economics literature on predatory pricing and modern doctrine and discourse on the subject raises yet another puzzle. On one hand, most regard current antitrust law to be heavily shaped by the core principles of contemporary economics. This point is sharply illustrated by Supreme Court antitrust cases that reversed precedents explicitly because prior law deviated from economic substance.¹³² Moreover, the development of modern antitrust doctrine on predatory pricing draws on economics literature for the proposition that predatory pricing is rare in justifying rules that circumscribe liability, and it emphasizes economic rationality specifically in advancing the recoupment requirement.¹³³

On the other hand, the general view that there exists a substantial convergence between antitrust doctrine and economic understandings is substantially mistaken in this context. Modern theoretical work on predatory pricing—which exploded in the 1980s and served to rationalize many views that had been largely cast aside as inconsistent with economics—has had little impact on doctrine¹³⁴ and only an intermittent influence on broader antitrust discourse.¹³⁵ Furthermore, the Supreme Court did not attend to modern empirical work that had already supplanted what it cited in its key opinions¹³⁶ to the effect that “predatory pricing schemes are rarely tried, and even more rarely successful.”¹³⁷ In light of this gap, which some commentators

¹³²See *Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36, 54, 56 (1977) (overruling *United States v. Arnold, Schwinn & Co.*, 388 U.S. 365 (1967)); *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877, 887, 888-89 (2007) (overruling *Dr. Miles Med. Co. v. John D. Park & Sons Co.*, 220 U.S. 373 (1911)).

¹³³See *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 588–90 (1986) (on the rarity of predatory pricing); *id.* at 587, 596 (on rationality and recoupment); *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 227 (1993) (recalling *Matsushita* on the rarity of predatory pricing); *id.* at 224 (on rationality and recoupment).

¹³⁴In *United States v. AMR Corp.*, 335 F.3d 1109, 1114–15 (10th Cir. 2003), the court recognized the modern theoretical literature and stated that, “[a]lthough this court approaches the matter with caution, we do not do so with the incredulity that once prevailed.”

¹³⁵As an example of the latter, see *Communication from the Commission — Guidance on the Commission’s Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings*, 2009 O.J. (C 45) 7, ¶ 68 [hereinafter *Guidance on Article 82*] (briefly noting leading modern theories of predation, but unlike many other parts of its discussion of predatory pricing, failing to cite illustrative cases).

¹³⁶See, e.g., Kaplow & Shapiro, *supra* note 49, at 1197, 1199 n.192 (discussing the uncited article, Richard O. Zerbe, Jr. & Donald S. Cooper, *An Empirical and Theoretical Comparison of Alternative Predation Rules*, 61 TEX. L. REV. 655 (1982), which considered more cases and reached different conclusions from those in the cited article, Roland H. Koller II, *The Myth of Predatory Pricing: An Empirical Study*, ANTITRUST L. & ECON. REV., Summer 1971, at 105); *id.* at 1197 (discussing more modern empirical evidence, some of which was published before *Brooke Group*).

¹³⁷*Matsushita*, 475 U.S. at 589. This passage is quoted, in turn, in *Brooke Group*, 509 U.S. at 226. Of interest, *Matsushita* mistakenly (presumably because it was not better informed by the litigants) refers to a “consensus among commentators” (which is supported by references to only those commentators taking one side of the so-called consensus), whereas *Brooke Group*’s quotation of *Matsushita* omits (without comment) this characterization.

have noted¹³⁸ but few have substantially developed,¹³⁹ it is natural to reflect briefly on what we do and do not understand about predatory pricing, with specific reference to its relationship to the analysis in this article that focuses on recoupment.

Modern theoretical work focuses on anticompetitive explanations, exploring models in which predatory pricing might be successful.¹⁴⁰ This work variously examines asymmetric information (for example, entrants have uncertainty about a dominant firm's costs),¹⁴¹ signal-jamming behavior (wherein the incumbent firm adopts a strategy rendering it difficult for entrants to ascertain potential profitability),¹⁴² and limited access to financing (even where entrants and their funders are sophisticated).¹⁴³ The heterogeneity and complexity of these models highlights the need to articulate anticompetitive explanations with greater specificity (an analogue to the emphasis in part II, there regarding the need to specify competing, possibly procompetitive explanations). Such precision is important to classification because, as we have seen with respect to recoupment's possible diagnostic role, it is difficult to know what information bears differentially on competing explanations, and how so, when those explanations are ambiguous. For example, many modern theories concern entrants' perceptions of a dominant firm's costs, but a best guess, after the fact, as to what those costs actually were (by some stated legal test that may differ from the relevant cost measure under the theory) does little to illuminate the nature of the entrant's ex ante uncertainty about the matter. Relatedly, as already mentioned, the magnitude of harm conditional on predation depends on the form and context of that predation (most obviously, establishing a reputation in a multi-market setting not only calls for a different diagnostic approach but also suggests a larger scope for harm).

There are also significant limitations on existing theory that render its application in particular cases difficult and call for further policy-relevant research by economists. First, most

¹³⁸See, e.g., Bolton, Brodley & Riordan, *supra* note 82, at 2241 (“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. The courts, however, have failed to incorporate the modern writing into judicial decisions, relying instead on earlier theory that is no longer generally accepted.”); *id.* at 2242–50; Hemphill, *supra* note 19, at 1605–06 (“In 1993, Alvin Klevorick performed an analysis demonstrating that no predatory pricing case had even considered reputation, signaling, or asymmetric information, nor cited the main contributions or contributors to recent economic thinking about predatory pricing. Nor did *Brooke Group* do so. An update of Klevorick's search [in 2000] reveals that the situation has hardly changed since *Brooke Group*.”); *id.* at 1600–07.

¹³⁹A theme of a Justice Department report (in significant part summarizing hearings at which a range of views was presented) was that the modern literature does shift our understanding of predatory pricing but does not readily translate into workable guidance. See U.S. DEP'T OF JUSTICE, *supra* note 57, at 54–58; see also *infra* note 148 (quoting John Roberts).

¹⁴⁰For surveys, see Bolton, Brodley & Riordan, *supra* note 82, at 2247–50, 2285–2321; Kaplow & Shapiro, *supra* note 49, at 1195–96; Paul Milgrom & John Roberts, *New Theories of Predatory Pricing*, in INDUSTRIAL STRUCTURE IN THE NEW INDUSTRIAL ECONOMICS 112 (Giacomo Bonanno & Dario Brandolini eds., 1990); Ordoover & Saloner, *supra* note 2, at 545–62.

¹⁴¹See, e.g., David Kreps & Robert Wilson, *Reputation and Imperfect Information*, 27 J. ECON. THEORY 253 (1982); Paul Milgrom & John Roberts, *Predation, Reputation, and Entry Deterrence*, 27 J. ECON. THEORY 280 (1982).

¹⁴²See Drew Fudenberg & Jean Tirole, *A Signal Jamming Theory of Predation*, 17 RAND J. ECON. 366 (1986); Scharfstein, *supra* note 7.

¹⁴³See Patrick Bolton & David Scharfstein, *A Theory of Predation Based on Agency Problems in Financial Contracting*, 80 AM. ECON. REV. 93 (1990).

theoretical models present a single anticompetitive explanation and identify, within the model, how the strategy works and what its success depends upon. Although helpful for classification, the work usually does not explicitly compare different explanations and thereby directly indicate how one would distinguish them in practice.¹⁴⁴ Another limitation is that most of the modern literature does not analyze features of different potential predation scenarios that bear on the requisite duration of predation, which importantly influences the magnitude of the expected short-run profit sacrifice and hence bears directly on recoupment analysis.¹⁴⁵ A different problem is that most theoretical work abstracts from enforcement: that is, it considers how different firms would behave in a world governed by rational profit-maximization when there is no prospect of liability.¹⁴⁶ Since the purpose of liability is to deter predation, it is important to understand how different adjustments to the legal regime influence firms' ex ante behavior (a point developed further in section B).¹⁴⁷

Courts cannot be expected to update and refine the law optimally unless a sufficient foundation exists and, moreover, is effectively presented by litigants, both lawyers and experts. In this respect, it does not appear that key decisions forming predatory pricing doctrine have benefited from the presentation of core elements of then-prevailing economic wisdom.¹⁴⁸ This

¹⁴⁴This limitation forms part of the basis for the skepticism presented in Kenneth G. Elzinga & David E. Mills, *Predatory Pricing and Strategic Theory*, 89 GEO. L.J. 2475 (2001), which is discussed further in Patrick Bolton, Joseph F. Brodley & Michael H. Riordan, *Predatory Pricing: Response to Critique and Further Elaboration*, 89 GEO. L.J. 2495 (2001).

¹⁴⁵Exceptions include Jean-Pierre Benoit, *Financially Constrained Entry in a Game with Incomplete Information*, 15 RAND J. ECON. 490 (1984), and Easley, Masson & Reynolds, *supra* note 57. In these models, there is ex ante uncertainty regarding recoupment (predation is rational when it is ex ante profitable, even though it may turn out to be unprofitable ex post). For further discussion, see section C.

¹⁴⁶For an exception, see Scharfstein, *supra* note 7.

¹⁴⁷Both incumbents' and entrants' actions may influence the prospect of liability, which feeds back on what they would find rational. Note further that many modern theories depend on the information structure, including how firms' actions will depend on their interpretations of the other firm's behavior; if that is not complicated enough, enforcement affects all of this and, put the other way, when enforcers are attempting to interpret an alleged predator's behavior, it is necessary to assess how one might, based on observable information, determine what game the apparent behavior appears to be an equilibrium of. Such subtleties reinforce the question raised at a number of points in this article about the comparative reliability of ex post expert reconstruction in litigation versus reliance on firms' internal documents, as best they can be interpreted.

¹⁴⁸*See, e.g.*, Bolton, Brodley & Riordan, *supra* note 82, at 2257 (stating that "in fairness, however, the old theory was the only economic view presented to the court" in *Brooke Group*). It is interesting that the initial outpouring of modern legal commentary in the mid- and late 1970s—starting with Areeda and Turner's seminal article, Areeda & Turner, *supra* note 61, and quickly followed by other prominent legal and economic commentaries (*see, e.g.*, sources cited in Kaplow & Shapiro, *supra* note 49, at 1198)—predates by less than a decade the outpouring of modern work in industrial organization economics on the subject, which was substantial enough by the end of the 1980s to warrant a major survey in the first volume of the *Handbook of Industrial Organization*. *See* Ordover & Saloner, *supra* note 2. Despite these and subsequent developments, the legal and economic commentary directed at antitrust law on predatory pricing did not fundamentally reconsider how the subject should best be approached. *See, e.g.*, William S. Comanor & H.E. Frech III, *Economic Rationality and the Areeda–Turner Rule*, 46 REV. INDUS. ORG. 253, 260–61 (2015) ("A striking feature of the theoretical economics literature on predatory conduct is the minimal role that is played by costs. They are not the pivotal factor that is emphasized in the Areeda–Turner approach. What instead are important are the expectations that firms have of each other. . . . In this context, costs by themselves[] are unimportant except through their influencing firms' expectations."); Kaplow & Shapiro, *supra* note 49, at 1199 ("Many believe that a cost-based test, perhaps one that uses average or marginal variable cost, would be a reasonable and administrable manner of identifying dangerous conduct while immunizing other conduct. It must be admitted, however, that this view reflects more a set of hunches than any precise combination of formal analysis and empirical evidence."); Ordover, *supra* note 87, at 83 ("[M]uch of the

latter point applies as well to modern empirical work, considered next.

The Supreme Court's emphasis on the supposed rarity of predatory pricing showcases the relevance of empirical evidence to the formulation and application of legal rules on the subject. Whether with reference to substantive rules or the level of proof required to assign liability, beliefs about the prevalence of various explanations for a category of behavior are important.¹⁴⁹ More specifically, empirical understandings of the subject bear on which possible competing explanations for alleged predatory pricing most merit analysis and how to identify and assess relevant evidence. As mentioned, the literature relied upon by the Supreme Court in its key decisions, *Matsushita* and *Brooke Group*, was dated on arrival.¹⁵⁰ In that time period, a consensus was emerging that predation was more frequent in contested cases than had been previously suggested and that there had been a number of prominent historical episodes of predatory pricing.¹⁵¹

There are, nevertheless, significant limitations on current empirical understanding. The actual prevalence of predatory pricing is neither well known nor readily ascertained. It is difficult to identify activity that often is hidden, the definition of which is contested, and the existence of which depends (under many understandings) on subtle factors. There has also been insufficient attention to the pertinent notion of frequency. If one considers the economy as a whole and asks what fraction of all price reductions involve predation (under any plausible

legal-economic debate over standards for predatory pricing is not based on sound economic models in which price predation is rational. Such markets are generally characterized by imperfect and asymmetric information. So far, the various tests for price predation and the 'recoupment' filters do not reflect the characteristics of these markets."); *see also* John Roberts, *Battles for Market Share: Incomplete Information, Aggressive Strategic Pricing, and Competitive Dynamics*, in *ADVANCES IN ECONOMIC THEORY FIFTH WORLD CONGRESS* 157, 185–86 (Truman F. Bewley ed., 1987) ("In summary, we see that the presumption toward which the profession seemed to be moving five years ago—that predation does not make sense—does not hold up if one believes that the sort of informational asymmetries considered here are present in real markets. Instead, predation can easily be part of a rational strategy However, this does not mean that the policy conclusion to which the McGee arguments led—that predation probably ought not to be illegal—is necessarily wrong. . . . [E]ven when predation is not ineffective, it need not involve below-cost pricing, post-entry output expansion, or any of the other patterns of behavior that are easily recognizable and have been proposed as tests for predation. Instead, establishing that a particular pattern of behavior was in fact predatory may involve determination of intent, plus a very detailed reconstruction of informational conditions. Although prosecuting predation under such a standard of law might represent a bonanza for lawyers and expert economic witnesses, it would not obviously be more desirable socially than simply allowing predation."); *id.* at n. 19 ("For reasons I will elaborate below, I am reluctant to suggest that the theory as yet justifies drawing clear policy implications. However, the following discussion is more in line of noting problems for others' policy proposals, and I am more confident of the theory's value here."). Interestingly, an important commentary on predatory pricing policy, Bolton, Brodley & Riordan, *supra* note 82, draws significantly on the more modern literature yet takes almost the entirety of the current regime (down to particular phrasings of the relevant factors in *Brooke Group*) as given, relying on the more modern literature primarily to fill out how some of the steps of the inquiry might thereby be illuminated.

¹⁴⁹As will be explained in section B, the manner in which they are relevant is more subtle than generally appreciated in settings, such as predatory pricing regulation, in which the core enforcement considerations relate to ex ante incentives.

¹⁵⁰Another curiosity is that, in *Cargill, Inc. v. Monfort of Colorado, Inc.*, 479 U.S. 104 (1986), decided shortly after *Matsushita* (and jointly drawn on in *Brooke Group* regarding recoupment, *see infra* section V.A), the Court rejected the argument that competitors should be disallowed from challenging mergers that allegedly generate opportunities for predation because, "[w]hile firms may engage in [predatory pricing] only infrequently, there is ample evidence suggesting that the practice does occur." 479 U.S. at 121. (*Cargill* was authored by Justice Brennan, who dissented in *Matsushita*.)

¹⁵¹*See, e.g.*, Bolton, Brodley & Riordan, *supra* note 82, at 2243–47; Kaplow & Shapiro, *supra* note 49, at 1196–97.

conception), the answer is that it is minuscule. More relevant, however, is how often actual predation exists in the subset of cases that enter the legal system and seem to look like predation. Here, knowledge is limited, and the answer is obviously substantially endogenous to the legal regime itself, which is to say that this relative frequency depends on the legal system's central features: the formally stated rules for predatory pricing, how enforcement agencies make their decisions, the incentives of private litigants, and how tribunals analyze the evidence and decide motions (which feeds back on litigants' incentives).¹⁵² Another challenge, growing out of the prior discussion of the theoretical literature, is that economists have devoted only modest attention to developing empirical methods that help in identifying predatory pricing—including, specifically, tests that distinguish predation under various of the modern theories from particular competing explanations.¹⁵³ Last but not least, the most important question for enforcement policy is how adjustments to various enforcement levers—such as changing a test for predation or altering the extent to which recoupment must be demonstrated—would influence the degree of deterrence and of the chilling of beneficial conduct.¹⁵⁴

There seems to be a prospect for improving the formulation of predatory pricing enforcement, both rule design and the analysis of particular cases, through further development in the pertinent literatures. It is hoped that the analysis of recoupment in this article will aid that effort (and not just with regard to recoupment) because, as we have seen repeatedly, fuller specification of competing hypotheses is central in distinguishing actual predation from benign or beneficial pricing and in determining the magnitudes of benefits and costs from assigning liability when classification is uncertain. Relatedly, the failure of prior antitrust commentary to appreciate the need to employ an explicit decision framework is not some quirky omission in assessments of recoupment but rather reflects a more general shortcoming with respect to how antitrust analysis is conducted.

B. Dictating Conduct versus Providing Incentives

Until now, the analytical framework corresponds to what is conventionally termed decision analysis.¹⁵⁵ One engages in classification: a determination of the probabilities that an act before a tribunal is of the harmful or benign type (say, illegal predatory pricing versus accommodation). Those probabilities, in turn, are used to weight the magnitudes of the respective effects (anti- and procompetitive). Together, these indicate whether the expected

¹⁵²For an early suggestion of this interdependence, see Joskow & Klevorick, *supra* note 3, at 237–38, 240–42 (noting further that some proposed alternatives to the Areeda-Turner test were motivated by how that test would induce inefficient ex ante behavior by firms).

¹⁵³By contrast, much more effort has been devoted to developing merger simulations. *See, e.g.*, MICHAEL D. WHINSTON, LECTURES ON ANTITRUST ECONOMICS 100–14 (2006) (surveying the literature); Baker & Bresnahan, *supra* note 127 (surveying techniques); Cory S. Capps, David Dranove, Shane Greenstein & Mark Satterthwaite, *Antitrust Policy and Hospital Mergers: Recommendations for a New Approach*, 47 ANTITRUST BULL. 677 (2002); Kaplow & Shapiro, *supra* note 49, at 1178–80 (surveying the literature). As mentioned briefly above, however, there exists a significant empirical industrial organization literature (including some of that cited here) that is designed to extract cost information, although it has not for the most part been developed specifically for the purpose of identifying predation during periods in which firms' strategies are contested.

¹⁵⁴This orientation is the focus of the section that follows.

¹⁵⁵*See, e.g.*, HOWARD RAIFFA, DECISION ANALYSIS: INTRODUCTORY LECTURES ON CHOICES UNDER UNCERTAINTY (1968).

benefits of assigning liability exceed the expected costs.

Stepping back, this familiar formulation of the decision problem takes as given an existing situation—here, the act that has occurred—and asks what is the optimal legal treatment. The analogy to medical decision-making is clear: we ask how our treatment decision will influence the outcome going forward for the patient before us. Returning to the legal context, this framing of the problem is most apt when the legal decision will dictate the future conduct of a party before the tribunal, such as a decision whether to prohibit a proposed merger or to enjoin particular actions by a firm.

By contrast, in many law enforcement settings the focus is on ex ante effects. Indeed, this is the primary orientation of predatory pricing enforcement. The purpose is to deter actual predation, and the core unwanted side-effect is that the prospect of the mistaken imposition of sanctions will chill beneficial price reductions.

The correct formulation of the decision framework when the concern is with the shaping of incentives for firms' behavior rather than dictating particular firms' future conduct is qualitatively different, regarding both classification and magnitudes. The correct classification-related question is not the (Bayesian posterior) probability that the act before the tribunal is of one or another type. Instead, it is addressed to the degree to which *changing* the liability determination in one manner or another alters the deterrence of harmful acts and the chilling of benign acts. And the relevant magnitudes are not the harm or benefit associated with permitting the act before the tribunal but rather the marginal harm and marginal benefit associated with the change in the degree of deterrence and chilling that results from the change in incentives associated with the contemplated change in the assignment of liability.¹⁵⁶

With regard to predatory pricing, and the recoupment condition in particular, the relevant inquiry can be stated as follows: Starting from some initial demarcation with regard to the circumstances in which liability is and is not assigned, suppose, for example, that we raise the required demonstration of the likelihood of recoupment slightly. The result will be that some marginal cases—in which the overall evidence was barely sufficient—will no longer give rise to liability. The effect on ex ante behavior of such a change will be to reduce somewhat both deterrence and chilling.¹⁵⁷ Each of those reductions can then be multiplied by the respective consequences: the magnitude of harm in those instances of actual predation that are no longer deterred and the magnitude of benefits in those instances of procompetitive pricing that are no longer chilled. Weighing these two effects will determine whether the marginally stricter recoupment demand is socially desirable. Engaging in such analysis for different strengths of

¹⁵⁶For an intermediate exposition of the similarities and differences, see Kaplow, *Likelihood Ratio Tests*, *supra* note 10. For more extended analyses, one informal and one formal, see Kaplow, *Burden of Proof*, *supra* note 10, and Kaplow, *Optimal Burden of Proof*, *supra* note 99, respectively. Of course, there are also mixed cases. For example, although merger approval decisions dictate future conduct, it is also true that anticipation of the merger approval decision may affect incentives to identify merger partners and, before that, to engage in various investments with payoffs that are in part contingent on future merger prospects. In that event, optimal legal policy must combine both types of analysis.

¹⁵⁷For each of these effects, the magnitude will be given (for the risk-neutral case) by the product of the resulting decrease in the expected sanction for the type of act and the density of marginal acts of that type (that is, how often the firm's benefits from the contemplated type of act just equal the expected sanction, for these are the acts that are deterred or chilled at the margin). See, e.g., Kaplow, *Burden of Proof*, *supra* note 10, at 764–66, 768. These factors, in turn, will differ across various possible predation strategies and competing explanations for the allegedly predatory conduct. One consequence is that the optimal proof requirements would correspondingly differ. (This point is in addition to the fact that the magnitudes of harm and benefit from deterrence and chilling, respectively, also may differ greatly across these competing explanations, a point emphasized in section II.E.)

proof with regard to recoupment would determine the optimal recoupment demand in a particular set of circumstances, holding all else equal.

The same logic applies to any other dimension of proof. In principle, interacting them all allows one to determine the optimal boundary between liability and no liability. If the only question was the analogue to classification, then the optimal proof requirement with respect to all the evidence would be a likelihood ratio test. That is, liability would optimally be assigned if and only if the likelihood ratio exceeded some threshold. The likelihood ratio is the likelihood that the overall set of evidence would be generated by predation divided by the likelihood that the same set of evidence would be generated by procompetitive pricing.¹⁵⁸

Elaborating this somewhat dense statement helps to explain how triangulation fits in. The likelihood ratio is a property of all of the evidence, taken together. In principle, there is no privileging of any particular piece of evidence or cluster of evidence—whether from a particular source (such as internal documents or regression analysis) or pertaining to a particular subject (such as recoupment or entry conditions). The likelihood ratio is higher whenever the evidence as a whole is relatively more likely to be generated by an anticompetitive act than by a procompetitive one. And the magnitude of the likelihood ratio is central because the effects of liability on deterrence relative to chilling are greater (all else equal) the higher is the likelihood ratio, without regard to whether, say, a high likelihood ratio resulted from strong evidence on the pricing being predatory combined with dubious evidence on recoupment or instead from weaker evidence on the pricing itself combined with strong evidence on recoupment. The principle of triangulation, wherein all the evidence is considered together (including possible interactions among different sorts of evidence), is correct with respect to the classification analogue when the design of legal rules is concerned with the provision of incentives, just as it is for assigning (Bayesian posterior) probabilities (starting with Bayesian priors) in decision analysis. In this respect, the previous analysis of classification—which, for ease of exposition was largely presented in the frame of decision analysis—remains applicable.¹⁵⁹

To reinforce a previous point, there is no need under either decision analysis or analysis concerned with ex ante incentives to formulate a separate conclusion on any particular aspect of the inquiry, such as the likelihood of recoupment. Relatedly, it is inappropriate in principle to apply a distinct evidence threshold for recoupment, or any other intermediate consideration. As explained, to ascertain the relative impact on deterrence versus chilling, one is concerned with the likelihood that the overall set of evidence would be generated, conditional on one or another explanation (the anti- or procompetitive one) being correct.

This logical point is nevertheless consistent with it sometimes being useful—as a heuristic—to clump certain subsets of evidence in order to analyze separately various aspects of

¹⁵⁸See Kaplow, *Burden of Proof*, *supra* note 10, at 812–13; Kaplow, *Likelihood Ratio Tests*, *supra* note 10.

¹⁵⁹For readers unfamiliar with the difference between decision analysis and the analysis of the incentive effects of legal rules or other incentive schemes, it may be helpful to explain why, under the latter, the Bayesian posterior probability is not relevant. That probability answers the question: How likely is it that the act before the tribunal is of the harmful rather than the beneficial type? But the *consequence* of the *prospect* of assigning liability in a given scenario rather than exonerating the defendant is to raise the ex ante probabilities of liability for both harmful and beneficial types of acts (typically, by different amounts), which in turn augments deterrence and chilling. Hence, a key component of the analysis of optimal liability determination is how *changes* in the way liability is expected to be determined translate into *changes* in actors' ex ante decisions, which inquiry is qualitatively different. For informal elaboration of the connection between the underlying distributions of opportunities for different types of acts and these different factors, including the Bayesian posterior probability, see Kaplow, *Burden of Proof*, *supra* note 10, at 786–89.

a problem, such as the recoupment condition. This sort of compartmentalized approach tends to be most helpful when certain parts of the overall analysis are largely independent, in which case one can analyze each component separately and then combine the sub-conclusions into a single overall conclusion in an appropriate manner without significant loss of information. However, much of the analysis in this article indicates that, in the case of recoupment and predation analysis more broadly, such separability often does not hold even approximately, with the result that analysis can go astray by too strong an insistence on examining recoupment in isolation. A looser and more broadly justified heuristic approach may be appropriate even when inquiries are not substantially independent, because compartmentalization can help focus thinking and avoid overlooking important angles if one, say, employs a checklist of potentially relevant factors. The present article does not reject the use of such decisional aids or the idea that recoupment analysis should be on the list. Rather, it seeks to make more explicit the interconnections among the items on the list in order to improve reasoning with regard to the ultimate question.

Distinguishing between competing hypotheses is only part of the story, a point elaborated in sections I.D and II.E. Under both decision analysis and the analysis of rules that influence ex ante incentives, we must also consider the magnitude of the impacts of liability on different types of acts. Much evidence—including some that is relevant to recoupment—also bears on these magnitudes. For decision analysis, the optimal assignment of liability depends on the expected (average) magnitudes of harm and benefit in light of the evidence at hand regarding the act before the decision-maker. With respect to rule changes that affect ex ante incentives, we are instead concerned with these magnitudes for marginal acts: acts that would, for example, be deterred or chilled by a slight relaxation of the liability threshold.

To elaborate, return to our formulation of the problem of optimally designing legal rules that influence ex ante incentives. Our question is how some particular adjustment to a rule, say, some increase in an evidence threshold, influences behavior. The influence would be through a reduction in deterrence and in chilling. In addition to estimating the size of these two effects on behavior, one must also consider their impact on welfare.

The acts no longer deterred or chilled will be marginal ones¹⁶⁰ in the following sense: they will be those acts that, under the heightened standard for liability, face expected sanctions just low enough to render them attractive, but that, under the previous looser standard, had expected sanctions that were just high enough to make commission of the acts ex ante unprofitable. Note that acts, both anti- and procompetitive ones, with benefits to firms exceeding the initial corresponding expected sanctions will remain undeterred or unchilled, respectively. And acts of both types that have low enough benefits to already have been deterred or chilled by a substantial margin will remain so after a slight tightening of the standard for liability.

¹⁶⁰Consider how acts just at the margin of being deterred or chilled differ from average acts among the set that are committed (which is to say, are undeterred or unchilled). Taking harmful acts, inframarginal undeterred acts will have higher benefits to firms than marginal acts generate. Note that, among inframarginal acts, those nearest the margin of being deterred have the lowest private benefits of that set, and hence the marginal benefit is lower than the average benefit. Therefore, if firms' benefits relate positively to harm (benefits being in the form of monopolistic profits), those just deterred will be the least harmful of undeterred acts, so marginal harm is less than average harm. For beneficial acts that may be chilled, the logic is analogous. Here, we would typically suppose that greater private benefits of (procompetitive) acts indicate greater social benefits. Hence, the marginal chilled act results in a forgone social benefit that is lower than that associated with the average unchilled act and greater than that associated with acts that already were chilled.

Stepping back, if we wish to determine optimal proof demands for predatory pricing, we must combine this incentive provision framework with the teachings of the modern literature on predatory pricing that was the focus of section A. That is, the models and empirical evidence on predatory pricing are the inputs to the optimal enforcement framework sketched here. Because, as mentioned, most of the industrial organization economics literature on predation abstracts from law enforcement, further work integrating these two literatures is central to section A's call for further development of the economics of predatory pricing in ways that would better inform antitrust policy on predation.

C. *Ex Ante versus Ex Post Perspectives on Recoupment*

The demand for recoupment is ordinarily understood to be satisfied if the recoupment condition holds either *ex ante* or *ex post*—that is, if the alleged predator's expected profit recovery exceeded its expected short-run profit sacrifice or if the actual recovery exceeded the actual short-run sacrifice.¹⁶¹ However, little attention has been devoted to whether one or the other should suffice rather than requiring one in particular or insisting on both.¹⁶² Perhaps requiring *ex ante* recoupment is thought to be correct, but, because it is difficult to ascertain in litigation, a challenger's demonstration that *ex post* recoupment in fact occurred permits or requires an inference that recoupment was plausible *ex ante*. Regardless, the matter should be examined explicitly, with attention to problems of proof and matters of policy.

Assessment of different ways of proving recoupment, whether *ex ante* versus *ex post* or any other, is necessarily subordinate to the prior discussion of recoupment's appropriate role in the optimal determination of liability. Confining attention to classification, the preceding section (like section I.C) emphasizes that appropriate analysis does not involve a separate decision regarding recoupment in any event. Rather, recoupment's relevance arises from how it helps us triangulate on the proper characterization of a defendant's alleged predation. Hence, the appropriate weight to put on evidence that bears on *ex ante* or *ex post* recoupment must be derived from how either or both sheds light on this ultimate question. That said, it is sometimes helpful as a heuristic to consider recoupment, and the difference between *ex ante* and *ex post* recoupment, as such; moreover, it eases exposition here to discuss them as if they were distinct questions, all the while keeping in mind that in this central respect they are not.¹⁶³

In considering these two types of evidence in the triangulation process, it is helpful to keep in mind the refinement of anticompetitive understandings of predation in light of the

¹⁶¹See, e.g., *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 232–33 (1993) (“Based on Liggett’s theory of the case and the record it created, there are two means by which one might infer that Brown & Williamson had a reasonable prospect of producing sustained supracompetitive pricing in the generic segment adequate to recoup its predatory losses: first, if generic output or price information indicates that oligopolistic price coordination in fact produced supracompetitive prices in the generic segment; or second, if evidence about the market and Brown & Williamson’s conduct indicate that the alleged scheme was likely to have brought about tacit coordination and oligopoly pricing in the generic segment, even if it did not actually do so.”); *id.* at 238 (“Not only does the evidence fail to show actual supracompetitive pricing in the generic segment, it also does not demonstrate its likelihood.”).

¹⁶²See Stephen Calkins, *The Supreme Court Term in Antitrust: More Objectivity than Ever*, 62 ANTITRUST L.J. 327, 399–401 (1994) (discussing what the *Brooke Group* Court meant in this regard).

¹⁶³Using the incentive provision formulation in section B, we can ask, for example, how assigning liability rather than no liability influences deterrence relative to chilling when there is, on one hand, slightly stronger evidence on the *ex ante* prospect of recoupment versus, on the other hand, slightly stronger evidence on whether recoupment in fact occurred.

different sorts of theories mentioned in section A. For example, when it appears that an alleged predator may be trying to establish a reputation for toughness that will be valuable in multiple markets, it might not rationally expect to recover its short-run profit sacrifice primarily in the market at hand but rather mostly in the other markets. In that case, a failure of ex post recoupment, narrowly viewed, would not be particularly probative, whereas a failure to keep out entrants in the other markets would be. And in some models of predation, a predator is uncertain about prospective entrants' costs, so ex ante profitability need not imply ex post success.¹⁶⁴ In such a case, there arises a distinct policy question of whether it is optimal to punish ex ante profitable attempts that fail, a matter taken up later in this section.

Another important consideration bearing on the appropriate weight to give to evidence on ex ante and ex post recoupment concerns the reliability of each. Section I.B, which states the recoupment condition and elaborates its components, makes clear how difficult it may be to determine whether the inequality is satisfied. For ex ante recoupment, one must identify the contours of alternative scenarios: predation versus accommodation in the short run, and monopoly versus accommodation in the long run. Each requires information about demand, the firm's cost structure, and other matters, much of which will be difficult to extract, in order to impute the pertinent behavior so that one can then compute the relevant profit terms. Moreover, the weighting factors require ex ante determination of such matters as how long the predation period will last and how long any accretion to market power will be retained. It is challenging to determine all of these components in order to estimate whether the ex ante condition was met through a battle of experts in ex post litigation. As mentioned, it may be easier, or at least a useful supplement, to consider a defendant's internal documents regarding its strategic calculations and other matters, although it is familiar that this too can be misleading. In sum, determining ex ante recoupment will often be quite difficult in serious cases, which is a significant part of the reason that often recoupment analysis may not optimally be given great importance in the triangulation process—all depending on what one learns from other relevant evidence.

Determination of whether ex post recoupment occurred—to the extent relevant, as discussed above—may sometimes be more feasible. We have the advantage that we may be able to observe what happened (assuming that, at the time of adjudication, the entire process has run its course; if not, only factors bearing on the short-run profit sacrifice may be observable). One should not forget, however, that each side of the recoupment condition involves the difference between two situations, at least one of which is counterfactual. Moreover, since it will be disputed which situation occurred, it may well be unclear which of the two we did in fact observe. (And, if we knew, we would already have an answer to whether predation occurred.) Hence, many of the challenges in determining ex ante recoupment carry over to the assessment of ex post recoupment. Moreover, if one is examining ex post recoupment primarily to illuminate whether the ex ante recoupment condition was likely to have held, there are obvious dangers of hindsight, notably, as mentioned, when ex ante recoupment is consistent with ex post failure due to uncertainty. (This is not to deny that, in less serious cases, the result may be obvious, and disposing of such cases is extremely important both in its own right and because it helps to discourage the filing of weak cases.)

There is another potential problem with significant reliance on ex post recoupment: it can

¹⁶⁴See sources cited *supra* note 145.

create perverse incentives for targeted rivals to flop. Put simply, if a targeted firm folds immediately, the short-run profit sacrifice will be negligible, virtually guaranteeing that the recoupment condition, viewed *ex post*, will hold.¹⁶⁵ Relatedly, if it strategically holds back on reentering, the alleged predator will enjoy greater profit recovery as well. One can make the same point by considering the converse: the harder a target firm fights, and the more aggressively it tries to reenter, the greater will be the realized short-run profit sacrifice and the smaller will be the realized long-run profit recovery, and hence the more likely its subsequent predation lawsuit will fail due to a lack of *ex post* recoupment.¹⁶⁶

Accordingly, proper analysis of how much weight to give to *ex post* recoupment must take such incentives into account.¹⁶⁷ This point is part of the broader argument advanced in section A about the need for the economic analysis of predation to be integrated with different enforcement regimes in order to inform predatory pricing policy. Theories of predation recognize the game theoretic setting involving strategic interaction between firms—in the simplest case, between a dominant firm and a single rival. The policy-relevant question is how different legal regimes will influence *ex ante* behavior. This article has largely focused on the *ex ante* behavior of alleged predators, regarding the deterrence of actual predation and the chilling of other conduct. But a complete analysis of predation, and thus of enforcement, necessarily includes the behavior of rivals. Predation by dominant firms is specifically motivated to influence rivals' behavior: their entry and exit, or perhaps their pricing (when the predation aims to discipline rather than eviscerate the competition). Enforcement is designed to alter firms' strategic behavior, and the behavior of all firms must be taken into account. Usually, that involves attention to how deterring predators will empower rivals, but here we must consider as well possible perverse incentives that some legal rules might generate for rivals.¹⁶⁸

Consider now some additional questions of legal policy. First, it is useful to reflect on the reasons it may be optimal to assign liability when there is *ex ante* but not *ex post* recoupment, or, putting the matter more broadly, when, as best we can tell, a defendant was engaged in actual predation¹⁶⁹ that turned out to fail. In essence, the argument for liability in such situations is a species of that for punishing failed attempts more generally. As is familiar,

¹⁶⁵In this regard, it is interesting to ponder whether Spirit Airlines quick exit, *see* Spirit Airlines, Inc. v. Northwest Airlines, Inc., 431 F.3d 917 (6th Cir. 2005), was in part motivated by the advice of counsel that, if they attempted to stay and fight, they would be undermining a potential predatory pricing case (which they won, in part because the recoupment analysis was quite favorable). In subsequent policy hearings, Kenneth Elzinga, a plaintiff expert in *Spirit Airlines*, remarked that “one key to the success for Northwest was simply how quickly Spirit exited.” Kenneth G. Elzinga, *in* HEARINGS, U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, SINGLE-FIRM CONDUCT AND ANTITRUST LAW 15 (June 22, 2006) [hereinafter HEARINGS].

¹⁶⁶Note further that similar analysis may influence decisions of a rival's funders. Another aspect of predatory pricing analysis concerns whether an alleged predator's strategy is likely to be effective in disciplining or eliminating rivals. In this respect as well, flopping rather than fighting would strengthen a rival's case.

¹⁶⁷This observation is applicable even when the relevance of *ex post* recoupment is limited to the manner in which it illuminates *ex ante* recoupment: it will be difficult for a defendant to argue that recoupment was *ex ante* implausible because of the anticipated large short-run profit sacrifice and limited potential for long-run profit recovery when in fact the duration was brief and the rival stayed out of the market.

¹⁶⁸Concerns for flopping tend to favor allowing only suits by the government, with no damages recovery to rivals in the event of liability. Pushing the point further, the purpose of predatory pricing enforcement is to deter predation, which in turn will induce more beneficial entry, but the prospect of liability might also induce entry that is undesirable but made attractive either by chilling effects or the prospect of collecting damages.

¹⁶⁹To simplify matters, assume in this section, following most (but not all) of this article, that the actual predation under discussion would be regarded to be illegal if it had been successful.

acts that would be crimes if successful are usually punished (although often less harshly) when the attempt to commit such acts is unsuccessful. (It is surprising how little attention has been given in the antitrust literature to the logic of punishing attempts as such—all the more so with monopolization because Sherman Act Section 2 explicitly proscribes attempted monopolization and *Brooke Group* itself addressed the framing of attempted monopolization.¹⁷⁰)

¹⁷⁰See *infra* section V.A; *cf.* Leslie, *supra* note 17, at 1762 (“Failure to profit should not be a defense to section 2 liability. This is particularly true with attempted monopolization claims because, by definition, the predator has not succeeded.”). This situation contrasts with that in many other jurisdictions. Notably, TFEU Article 102—the analogue to Sherman Act Section 2—punishes the abuse of dominance but does not cover attempts. See, e.g., DAMIEN GERADIN, ANNE LAYNE-FARRAR & NICOLAS PETIT, *EU COMPETITION LAW AND ECONOMICS* 175 (2012) (“Similarly, Article 102 applies only to firms that already hold a dominant position. Unlike in US antitrust law, . . . the acquisition of monopoly power through anti-competitive means[] is not an offence under EU competition law.”); ROBERT O’DONOGHUE & JORGE PADILLA, *supra* note 109, at 141 (“However, if dominance is not proven, no abuse can be made out, regardless of the anticompetitive effects of the conduct in question. This is an important point of distinction from other legal regimes that sanction unilateral conduct” such as the United States.)

The prohibition on attempted monopolization—and that on monopolization—are themselves puzzling in some respects. First, what is one to make of the requirement in attempted monopolization cases that there be a “dangerous” probability of success? See, e.g. *Spectrum Sports, Inc. v. McQuillan*, 506 U.S. 447, 456 (1993). At first glance, it may seem that “dangerous” is an odd sort of adjective to attach to the noun “probability” since it refers not to the level of the probability (high or low) but to some admixture involving the impact of success. As an analogy, reflect on what would count as a “dangerous” probability with regard to moving near the edge of a cliff to get a better view, with some probability of falling to one’s death. Here, a mere one percent chance would be a dangerous probability; indeed, most would regard one in ten thousand as dangerously high. By analogy, we can ask what is the minimally sufficient probability to enter the danger zone when the harmful outcome is monopolization. It is hardly obvious a priori that this probability is particularly large, although depending on how one assesses the likelihood and consequences of different errors, it could optimally be quite high. Note that an act may be certainly anticompetitive and have only a minuscule, if any, probability of resulting in monopoly, or be highly dubious as to whether it is anticompetitive at all but, conditional on its being anticompetitive, have a significant chance of generating monopoly. That is, uncertainty about whether monopoly would result and about whether the act is anticompetitive to begin with are qualitatively different things.

To examine another puzzling feature of the proscription on monopolization and attempted monopolization, consider a continuum in which 0 corresponds to perfect competition and 100 is the point at which one has just barely reached the point that the law designates as “monopoly” for purposes of Section 2 (or “dominance” under Article 102). A firm at 99 is permitted to engage in any unilateral anticompetitive acts to stay at 99, rather than having its score fall, even all the way to 0, as long as those acts do not involve a dangerous probability of raising its score to 100. Moreover, a firm at 0 is permitted to engage in any unilateral anticompetitive acts to reach 99, as long as it is clear that it will stop short of 100 (perhaps it agrees to abstain once it hits 99), for there is no dangerous probability of monopoly (100). However, an anticompetitive act that moves a firm from 99 to 101 would constitute monopolization, and an anticompetitive act with a dangerous probability of moving a firm from 99 to 101 would constitute attempted monopolization. Although there is substantial justification for circumscribing the liability of dominant firms for so-called unilateral acts due to their ubiquity and often their ambiguity (with regard to whether they are truly anticompetitive rather than procompetitive), it is hard to make sense of this particular structure for the law, which does not seem to be appreciated. Among other considerations, it seems unlikely that we would often be more confident that assigning liability was optimal with respect to an act with an apparent anticompetitive effect of moving the needle from 99 to 101 than for one with an effect of moving it from 0 to 99, or anything close to such a swing. See also Louis Kaplow, *The Meaning of Vertical Agreement and the Structure of Competition Law*, 80 ANTITRUST L.J. 563 (2016) (challenging conventional understandings of the meaning of unilateral action and raising questions about the relationship between Sections 1 and 2 of the Sherman Act). Of course, it is possible that the law—despite a consensus regarding its content, which translates literally in the manner just described—is not applied in anything approximating what is depicted here. And the insistence on some substantial market power may serve important screening functions, particularly if it is thought difficult for tribunals to accurately determine which acts are anticompetitive (supposing greater confidence in market power assessment, including in attempts cases, the present subject—where it is sufficient to demonstrate that the alleged anticompetitive acts will generate significant market power).

The core argument for punishing attempts concerns deterrence.¹⁷¹ Because deterrence can also be augmented in other ways, such as by raising the penalty for success or boosting the probability with which successful attempts result in the imposition of sanctions, the analysis is a comparative one. Here, the central concern is the tradeoff between deterrence and chilling when tightening different dimensions of enforcement. Note further that, for various alternative enforcement strategies, this tradeoff will depend on the strength of the evidence. Notably, some attempts may be clearly established despite their lack of success, making them attractive targets for liability, and some cases of apparent success may be poor targets for liability because of uncertainties about whether they involved true predation rather than some other, beneficial behavior. Subjecting attempts to liability tends to be particularly precarious when the failure itself casts significant doubt on the classification, the analogue here being when a failure of ex post recoupment in some situation makes the predation explanation particularly implausible.¹⁷² On the other hand, when a defendant's action almost surely involved predation—rather than procompetitive investment or accommodation—but success is very difficult to prove, it tends to be desirable to assign liability even if the act might involve a failed attempt. Consistent with this article's broad triangulation theme, therefore, liability is likely to be optimal for some attempts that failed or whose success is uncertain, but not others.¹⁷³

Second, and really the flip side of the foregoing, it may sometimes make sense to place heavy reliance on ex post success and, relatedly, on ex post recoupment. As already explained, as difficult as this may be to determine, analyzing the matter ex ante may be substantially more challenging. In such cases, it may be optimal to demand ex post recoupment or other indications of success, such as whether a rival was actually extinguished or disciplined. A corollary is that, in such instances, it may be necessary to limit challenges to fully consummated predation, for otherwise it may be impossible to gauge success.¹⁷⁴ Observe that, to this extent, one would essentially be eliminating liability for attempts.¹⁷⁵

¹⁷¹See Steven Shavell, *Deterrence and the Punishment of Attempts*, 19 J. LEG. STUDIES 435 (1990). Deterrence is not the only reason to punish failed attempts. With attempted murder, for example, incapacitation may be favored because there may be a significant revealed risk that the unsuccessful perpetrator would try again.

¹⁷²Another argument against liability for attempts or, conditional on assigning liability, in favor of reduced sanctions, is that some attempts may, as a consequence of their failure, reveal themselves to be less dangerous and hence less in need of deterrence. It was already explained in section I.D how some factors militating against recoupment also suggest that the predation (if indeed that is what occurred) would be less harmful.

¹⁷³The present analysis also intersects with that in section II.D concerning what was referred to as possibly mistaken predation, which itself may be difficult to distinguish from an unsuccessful attempt.

¹⁷⁴See also *infra* note 234 (explaining limitations of such an approach for screening out weak cases). A related idea is the suggestion in Frank H. Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. Chi. L. Rev. 263, 331–33 (1981), of eliminating suits by competitors. If only customers can sue, and if their damages are contingent on the extent of price elevation in the recovery period, then suits are limited to predation that is at least partly successful.

¹⁷⁵In addition, one would be eschewing the opportunity to stop the predation before it could have its anticompetitive impact, relying entirely on deterrence—and in that regard, without the deterrence supplement provided by the punishment of attempts.

As mentioned at the outset of this section, it seems to be taken for granted that a party challenging alleged predatory pricing enjoys an option: to demonstrate recoupment ex ante or ex post, either being sufficient. On its face, this option makes it easier to find liability by comparison to insisting that ex ante recoupment be demonstrated, or demanding that ex post recoupment be demonstrated, or requiring both. However, as the discussion throughout this section should make clear, any such comparison depends on the confidence with which any of these conditions must be demonstrated under the different imagined regimes. (For example, one could insist on the demonstration of ex ante recoupment but more readily find the condition satisfied.) Optimal liability assessment, involving triangulation, would consider either or

V. Doctrine and Legal Institutions

The core of this investigation, contained in Parts I–IV, addresses how properly to analyze predatory pricing, with an emphasis on recoupment. This part shifts the focus to existing law in the United States.¹⁷⁶ Section A explores the doctrinal development of the recoupment requirement with special attention to its relationship to Sherman Act Section 2’s monopoly power requirement, in light of the apparent overlap between the two. Section B examines structured decision rules that are sometimes advanced by courts and commentators, explaining how the sequential siloing of inquiries that they entail is antithetical to central features of proper analysis that have been developed throughout this article. Section C offers brief remarks on legal institutions and on the use of recoupment inquiries to screen out weak cases.

A. Doctrinal Development

In exploring recoupment’s doctrinal development, much of this section focuses on its relationship with preexisting doctrinal demands regarding market power in light of the fact that both inquiries, as commonly understood, examine similar factors in similar ways.¹⁷⁷ For this very reason, a number of puzzles are presented by the doctrinal relationship (or lack thereof) between recoupment and market power—in Sherman Act Section 2 cases, monopoly power or a

both—or neither—depending on the nature of the available evidence on each and on all of the other pertinent evidence.

¹⁷⁶The landscape in the European Union is substantially different: the competition commission and courts have not imposed a recoupment requirement but have recognized its basic logic and potential relevance. *See* Case 62/86, *AKZO Chemie BV v. Comm’n*, 1991 E.C.R. I-03359, ¶ 71 (“A dominant undertaking has no interest in applying such prices except that of eliminating competitors so as to enable it subsequently to raise its prices by taking advantage of its monopolistic position”); Case 333/94, *Tetra Pak International SA v. Comm’n* (Tetra Pak II), 1996 E.C.R. I-05951, ¶ 44 (“Furthermore, it would not be appropriate, in the circumstances of the present case, to require in addition proof that Tetra Pak had a realistic chance of recouping its losses. It must be possible to penalize predatory pricing whenever there is a risk that competitors will be eliminated.”); Case 202/07, *France Télécom SA v. Comm’n*, 2009 E.C.R. I-02369, ¶¶ 107–111 (invoking recoupment logic, restating that recoupment is not a necessary condition for liability, but explaining that this does not negate recoupment’s possible relevance); *Guidance on Article 82, supra* note 135, ¶ 71 (“This does not mean that the Commission will only intervene if the dominant undertaking would be likely to be able to increase its prices above the level persisting in the market before the conduct. It is sufficient, for instance, that the conduct would be likely to prevent or delay a decline in prices that would otherwise have occurred. Identifying consumer harm is not a mechanical calculation of profits and losses, and proof of overall profits is not required.”); *id.* ¶ 71 n.6 (“More in general, as predation may turn out to be more difficult than expected at the start of the conduct, the total costs to the dominant undertaking of predating could outweigh its later profits and thus make actual recoupment impossible while it may still be rational to decide to continue with the predatory strategy that it started some time ago.”); *Discussion Paper on Article 82, supra* note 109, ¶ 96 (“The company will make this sacrifice when it considers that it is likely to be able to recoup the losses or lost profits at a later stage after its actions have had the foreclosure effect.”); *id.* ¶ 115 (“In case there is no direct evidence of a predatory strategy . . . the following elements will in particular be of relevance to show a plausible scheme of predation: . . . does [the dominant company] have the possibility to recoup the losses in the foreseeable future through (a return to) high prices”); *id.* ¶ 121 (“While ability to directly finance the losses incurred may be relevant, it is more important to investigate the incentive to predate and investigate whether the losses can be recouped.”); *id.* ¶ 122 (in explaining how it conducts recoupment analysis, states that “[t]he Commission does therefore not consider it is necessary to provide further separate proof of recoupment in order to find an abuse”); *id.* ¶ 123 (stating that a company can rebut by showing the impossibility of recoupment).

¹⁷⁷*See, e.g., AREEDA & HOVENKAMP, supra* note 39, at 58 (stating that the recoupment inquiry “resembles the ‘market power’ inquiry in monopolization cases or the ‘dangerous probability of success’ query in cases involving attempts to monopolize”).

dangerous probability thereof.¹⁷⁸ Are there two legally central issues or just one? And, if there are two, what are the qualitative or quantitative differences between them? Does the recoupment requirement augment, refine, or replace the monopoly power requirement?

Answering such questions is difficult because *Brooke Group*, the Supreme Court case most associated with instantiating the recoupment requirement¹⁷⁹ and elaborating the requirements for predatory pricing cases under Sherman Act Section 2, does not explicitly relate the established blackletter law of monopolization and attempted monopolization to recoupment.¹⁸⁰ One might attribute this failure to the fact that the Court was confronted by a predation challenge under (only) the Robinson-Patman Act, which is not associated with an independent, robust market power requirement.¹⁸¹ Nevertheless, a central holding of *Brooke Group* was that the requirements under the two statutes for predation cases are similar. Moreover, in this respect *Brooke Group* is regarded to have moved (to the extent it was not there already) the standard under the Robinson-Patman Act upward, toward that understood to exist under the Sherman Act, so one might have expected more explicit attention to how its doctrinal exegesis related to the Sherman Act standard.¹⁸²

The scope for ambiguity, if not confusion, is compounded by the murkiness surrounding both monopoly power and recoupment. Regarding the former, antitrust doctrine, agency guidance, and commentary more broadly—although routinely insisting that there be substantial market power in Section 2 cases—provide remarkably little content to these pronouncements. And, as we have seen in parts I–IV, recoupment has been substantially underanalyzed as well.

¹⁷⁸To avoid repetition, the text will often use the term monopoly power as a shorthand for both versions of the requirement.

¹⁷⁹Moreover, as will be discussed later in this section, in doctrinally grounding recoupment for Sherman Act Section 2 cases (and for Robinson-Patman Act cases), *Brooke Group* drew on *Matsushita* and *Cargill*, neither of which were Section 2 cases, so the answers cannot be found simply by tracing recoupment's doctrinal roots.

¹⁸⁰As will be discussed below, the Court states the recoupment requirement in a manner that mimics the attempted monopolization test, but it does not comment explicitly on the connection. Moreover, in its initial elaboration of the meaning of recoupment, the Court speaks in terms of market power: “As we have observed on a prior occasion, ‘[i]n order to recoup their losses, [predators] must obtain enough market power to set higher than competitive prices, and then must sustain those prices long enough to earn in excess profits what they earlier gave up in below-cost prices.’” *Matsushita . . .*” *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 225–26 (1993) (emphasis added); see also *id.* at 231–32 (“As we have noted, “[t]he success of any predatory scheme depends on maintaining monopoly power for long enough both to recoup the predator’s losses and to harvest some additional gain.” *Matsushita . . .*” (emphasis added)).

¹⁸¹However, the jury in *Brooke Group* was instructed (in somewhat conflicting ways) that market power was required. See *Calkins*, *supra* note 162, at 380 & nn.289, 290.

¹⁸²The text emphasizes the possible relationship between recoupment and the monopoly power requirement in monopolization cases. Keep in mind, however, that the recoupment prerequisite would typically be taken to be located somewhere in the second monopolization element, concerning the nature of the act before the tribunal. That branch of the doctrine is frequently specialized, in the sense that inquiries generally differ, say, for predatory pricing cases and exclusive dealing cases. The Department of Justice’s monopolization report, for example, presents an early chapter on monopoly power followed by separate chapters on different practices. See U.S. DEP’T OF JUSTICE, *supra* note 57. And it locates its treatment of recoupment in the chapter on predatory pricing. *Id.* at 67–69. Interestingly, its recoupment discussion makes no reference whatsoever to market or monopoly power (the word “power” does not appear). Likewise, the ABA Model Jury Instructions locate recoupment in its segment on the act of predatory pricing, which is separate from its monopoly power instructions. See MODEL JURY INSTRUCTIONS, *supra* note 90, at C-47 to C-54. Under this interpretation, the questions about the differences between the monopoly power and recoupment requirements are highlighted (which, if either, is higher? are any differences purely quantitative or also qualitative?), whereas if recoupment is viewed as part of, a replacement for, or an instantiation of the monopoly power requirement, the range of uncertainty regarding possible differences seems less.

A firm's market power is conventionally understood to refer to its ability to profitably elevate price above a competitive level.¹⁸³ Recoupment has already been discussed at length, and the recoupment condition, stated in section I.B, includes many factors. As a practical matter, the cases and discourse on recoupment often focus on whether a successful predator will be able to earn sufficient profits during the recovery period. Examinations of both market power and recoupment ordinarily consider such factors as the firm's market share, the ease of entry, whether rivals (still) in the market can readily expand their capacity if prices were to rise, and the ability of customers to turn to substitutes.¹⁸⁴

This overlap immediately raises questions about what, if any, are the differences between the two inquiries. Specifically, if substantial market power has been established, why does that not imply that expected recoupment would be substantial? And if significant market power is lacking, which would seem to cast doubt on recoupment, why hasn't the plaintiff lost already due its failure to satisfy the monopoly power requirement? Is the demand for recoupment a mere reminder that there must be substantial market power? Or does it replace the market power requirement? Or (perhaps equivalently) might it be understood as giving more precise content to the monopoly power requirement in predation cases (an appealing notion in light of the fact that the monopoly power requirement is often stated in a vacuum)? If a plaintiff can prove that a defendant's pricing was predatory, would drive out rivals, and would then lead to recoupment sufficient to render the strategy profitable, might it still lose due to a lack of monopoly power?

To dig deeper, let us begin with the monopoly power requirement and its analogue in attempted monopolization cases. According to *Grinnell*: "The offense of monopoly under § 2 of the Sherman Act has two elements: (1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident."¹⁸⁵ Attempted monopolization, under *Spectrum Sports*, requires proof of "a dangerous probability of achieving monopoly power. . . . [D]emonstrating the dangerous probability of monopolization in an attempt case . . . requires inquiry into . . . the defendant's economic power"¹⁸⁶

¹⁸³See, e.g., U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, COMMENTARY ON THE HORIZONTAL MERGER GUIDELINES 1 (2006); AREEDA, HOVENKAMP & SOLOW, *supra* note 126, at 109, 112; see also MODEL JURY INSTRUCTIONS, *supra* note 90, at C-4 ("Instruction 2: Monopoly Power Defined. Monopoly power is the power to control prices and exclude competition in a relevant antitrust market. More precisely, a firm is a monopolist if it can profitably raise prices substantially above the competitive level for a significant period of time. . . .")

¹⁸⁴See, e.g., *supra* note 177 (quoting Areeda and Hovenkamp); MODEL JURY INSTRUCTIONS, *supra* note 90, at C-51 (instructing that "To analyze whether sustained excessive pricing is likely to occur, you must consider a number of factors about the market, including the number of competitors, whether entry is easy, whether firms in the market have excess capacity or could quickly create or purchase new capacity to absorb the market share of its rivals, whether firms not in the market could shift assets to the market, and whether substitute products might be available to defeat a price increase.", which language appears in its recoupment instruction but, as is apparent, could as well be offered in connection with whether there is a dangerous probability of achieving monopoly power in an attempted monopolization instruction or, more broadly, as part of an exposition of market power or monopoly power or the definition of a relevant market). The emphasis on entry in particular was examined in section III.A.

¹⁸⁵*United States v. Grinnell Corp.*, 384 U.S. 563, 570–71 (1966). Interestingly, although *Grinnell* is the go-to citation for the elements of monopolization, that case itself offered neither discussion nor citations in announcing the now-canonical version of the rule.

¹⁸⁶*Spectrum Sports, Inc. v. McQuillan*, 506 U.S. 447, 456, 459 (1993); see also U.S. DEP'T OF JUSTICE, *supra* note 57, at 6–7 ("The 'dangerous probability' inquiry requires consideration of 'the relevant market and the defendant's ability to lessen or destroy competition in that market' [quoting *Spectrum Sports*]. In making these assessments, lower courts have relied on the same factors used to ascertain whether a defendant charged with monopolization has monopoly

Because *Brooke Group* (as mentioned, a Robinson-Patman Act case) held that predatory pricing cases were essentially to be judged under the standards of Sherman Act Section 2, and since the factual setting was framed by the Court as one involving an attempt, reference to the latter test might have been expected. Indeed, *Spectrum Sports* (which, moreover, was decided just five months earlier) is cited at two key points in *Brooke Group*.¹⁸⁷ Nevertheless, despite those citations—and the fact that *Spectrum Sports* (a short opinion) was entirely about the dangerous probability of monopolization element of attempted monopolization claims—*Brooke Group* does not relate that element to recoupment.¹⁸⁸

Regarding recoupment itself, the now-canonical formulation from *Brooke Group* is: “The second prerequisite to holding a competitor liable under the antitrust laws for charging low prices is a demonstration that the competitor had a reasonable prospect, or, under § 2 of the Sherman Act, a dangerous probability, of recouping its investment in below-cost prices.”¹⁸⁹ It is hard to miss the seeming connection between the recoupment requirement and the market power requirement in attempts cases when *Brooke Group*’s conscious formulation of the former refers to “a dangerous probability[] of recouping” shortly after it had quoted *Spectrum Sports*’s statement of the latter as “a dangerous probability of actual monopolization”¹⁹⁰—and, moreover, the Court had also just pronounced that predatory pricing cases were to be governed by Sherman Act standards.¹⁹¹ Given this choice of language for its newly announced statement of the legal

power, while recognizing that a lesser quantum of market power can suffice.”).

¹⁸⁷One of these references is in *Brooke Group*’s declaration that the requirements under the Robinson-Patman Act and Sherman Act in predatory pricing cases are similar. *See Brooke Group*, 509 U.S. at 222 (“There are, to be sure, differences between the two statutes. For example, we interpret § 2 of the Sherman Act to condemn predatory pricing when it poses ‘a dangerous probability of actual monopolization,’ *Spectrum Sports*, . . . whereas the Robinson-Patman Act requires only that there be ‘a reasonable possibility’ of substantial injury to competition before its protections are triggered But whatever additional flexibility the Robinson-Patman Act standard may imply, the essence of the claim under either statute is the same”). The other reference emphasizes *Spectrum Sports*’s core holding that, in attempted monopolization cases, in addition to showing an exclusionary act, the challenger must demonstrate a dangerous probability of success—the monopoly power requirement in attempts cases. *See Brooke Group*, 509 U.S. at 224–25.

¹⁸⁸As indicated at the end of the preceding footnote, the *Brooke Group* Court explicitly cites *Spectrum Sports* for this proposition (and, as it happens, shortly after its statement of the recoupment requirement), yet it is in a disconnected paragraph, following a quotation from *Brown Shoe* on the familiar idea that the antitrust laws protect “competition, not competitors.”

¹⁸⁹*Brooke Group*, 509 U.S. at 224. This section, like the rest of the article (*see supra* note 5) sets to the side the point that the articulation of the recoupment requirement in *Brooke Group* refers not only to profit recovery (the opinion’s focus) but also to success in eliminating or disciplining rivals.

¹⁹⁰*See supra* note 187 (also noting *Brooke Group*’s subsequent, disconnected quotation of *Spectrum Sports* on the issue). In all, the majority uses the phrase “dangerous probability” three times in its opinion, all in the span of a few pages; the first and third usages are the attempted monopolization standard, with reference to *Spectrum Sports*, whereas the second usage is in announcing the now widely quoted recoupment requirement, and that is the only one which does not reference *Spectrum Sports*. *See Brooke Group*, 509 U.S. at 222–25.

¹⁹¹*See supra* note 187 (quoting *Brooke Group*). For some prior musings about the Court’s choice of language for the recoupment requirement, see Jonathan B. Baker, *Predatory Pricing After Brooke Group: An Economic Perspective*, 62 ANTITRUST L.J. 585, 594 n.42 (1994) (“In its reference to the Sherman Act § 2 test, the Court presumably meant that plaintiff must demonstrate a dangerous probability of success in achieving monopoly power (not recoupment), and that it must show a likelihood of recoupment in order to prove a dangerous probability of achieving monopoly power.”), and Calkins, *supra* note 162, at 399 n.384 (“The ‘dangerous probability’ language is out of place here. The attempt violation requires a dangerous probability of achieving monopoly power by one means or another, or a combination of means. But achieving monopoly power and achieving recoupment may be quite different things, depending on the rigor of the latter test. The Court may reasonably want to protect aggressive pricing by immunizing it absent a ‘reasonable expectation’ or ‘prospect’ of recoupment. But one ‘dangerous probability’ test is enough.”).

rule, one might have imagined that the *Brooke Group* opinion would have articulated this connection and then explained that the need for recoupment was simply an aspect, a corollary, or perhaps the whole of the preexisting demand in attempted monopolization cases for demonstration of a “dangerous probability” of success. They might have written that, if there was no dangerous probability of recoupment, then the alleged predator could not be imagined to have a dangerous probability of success. But the Court did no such thing.¹⁹²

Instead, *Brooke Group* grounded its articulation of the recoupment demand in *Matsushita*¹⁹³ and *Cargill*,¹⁹⁴ neither of which is a monopolization or attempted monopolization case, allowing the interpretation that there is no connection whatsoever between the monopoly power and recoupment requirements. Specifically, the *Brooke Group* Court focused on these two prior cases’ insistence that conduct that is alleged to be anticompetitive must be shown to involve rational, profit-maximizing behavior in order for it to be regarded to be plausible.¹⁹⁵ Rationality and plausibility were central to *Matsushita* (part of the Supreme Court’s 1986 summary judgement trilogy), which is understood more broadly to stand for the proposition that less plausible claims require stronger proof to warrant sending a case to the factfinder.¹⁹⁶ This feature is central because the *Brooke Group* Court is explaining why the facts before it were insufficient to support the jury’s verdict for the plaintiff.

In light of the foregoing, one might wonder whether the longstanding monopoly power demand in Section 2 cases has been eliminated, sub silentio, for predation cases. After all, *Brooke Group* announces what is required (under the Sherman Act and not just the Robinson-Patman Act), and in doing so lists “two prerequisites to recovery”—(1) “that the prices complained of are below an appropriate measure of . . . costs” and (2) recoupment (as articulated above).¹⁹⁷ Monopoly power, and its analogue in attempts cases, seems to have vanished.

Nevertheless, it would be highly strained to interpret the case as eliminating a longstanding and uncontroversial requirement without explicitly saying so, particularly since the issue was not before the Court. This point is also powerfully indicated by the fact that the Supreme Court had just decided *Spectrum Sports*, a case standing for the single proposition that

¹⁹²Lower courts after *Brooke Group* have sometimes behaved similarly. See, e.g., *Advo, Inc. v. Phila. Newspapers, Inc.*, 51 F.3d 1191, 1197, 1200 (3d Cir. 1995) (citing *Spectrum Sports* three-part test for attempted monopolization, the third being “a dangerous probability of achieving monopoly power,” but labeling its section discussing the subject “Dangerous Probability of Recoupment,” citing *Brooke Group* and using the language of recoupment at the start of the section (emphasis added)).

¹⁹³*Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574 (1986).

¹⁹⁴*Cargill, Inc. v. Monfort of Colorado, Inc.*, 479 U.S. 104 (1986).

¹⁹⁵The language following the above *Brooke Group* quotation of the recoupment requirement is: “See *Matsushita, supra* . . . ; *Cargill, supra* ‘For the investment to be rational, the [predator] must have a reasonable expectation of recovering, in the form of later monopoly profits, more than the losses suffered.’ *Matsushita, supra*, 475 U.S., at 588–589 Recoupment is the ultimate object of an unlawful predatory pricing scheme; it is the means by which a predator profits from predation.” 509 U.S. at 224. The Court also cited those cases for other propositions, notably regarding the price-cost requirement in predatory pricing (both cases) and the infrequency of predatory pricing (*Matsushita*, but not *Cargill*, on which see note 150), that are not central to the present discussion.

¹⁹⁶See *Matsushita*, 475 U.S. at 587 (“It follows from these settled principles that if the factual context renders respondents’ claim implausible—if the claim is one that simply makes no economic sense—respondents must come forward with more persuasive evidence to support their claim than would otherwise be necessary.”). The text emphasizes *Matsushita* because discussion of predatory pricing, including recoupment, was at the core of that case whereas it receives only passing mention in *Cargill* (and many of the *Brooke Group* Court’s references to *Cargill* are along with, and sometimes quoting, *Matsushita*).

¹⁹⁷509 U.S. at 522–24.

the monopoly power analogue in attempted monopolization cases is not only central but also must be proved independently of conduct—and which opinion, as mentioned, is invoked in *Brooke Group* itself, which seemed to crib its recoupment test from there. Furthermore, lower courts that apply *Brooke Group* and subsequent commentary do not suggest that any such doctrinal upheaval took place.¹⁹⁸ Any that is found is confined to recoupment and to the Court’s statement that the requirements in predation cases under the Robinson-Patman Act and the Sherman Act “are similar.”

Supposing, therefore, that Section 2’s monopoly power requirement remains, let us consider how it relates to the demand for recoupment. Recall that both inquiries typically examine similar factors in similar ways. Either they are the same or there must exist quantitative or qualitative differences.

Monopoly power, perhaps because its centrality is so taken for granted, is somewhat of an enigma. It is often analyzed—in predation cases and more broadly—in a vacuum, without a clear articulation of its analytical relevance to the desirability of assigning liability to the practice under consideration. It is understood to refer to a great deal of market power—and to a

¹⁹⁸See, e.g., MODEL JURY INSTRUCTIONS, *supra* note 90, at C-45 (states in its Instruction 1 on Predatory pricing that “[*Monopolization - General, Instructions 1 through 10, supra, should be given in conjunction with this instruction, to the extent pertinent to the case.*]”); and most of those instructions pertain to market definition and monopoly power). As an interesting illustration, Elzinga and Mills, who consulted in *Brooke Group*, state in a subsequent essay that the Court held that monopoly power is one of three requirements in predation cases (in addition to a price-cost test and recoupment), overlooking that the Court crisply listed only two, not their three, requirements in pronouncing the rule. See Kenneth G. Elzinga & David E. Mills, *Predatory Pricing in the Airline Industry: Spirit Airlines v. Northwest Airlines (2005)*, in *THE ANTITRUST REVOLUTION: ECONOMICS, COMPETITION, AND POLICY* 219, 223–24 (John E. Kwoka, Jr. & Lawrence J. White eds., 5th ed. 2009). As a further illustration, Patrick Bolton, Joseph Brodley, and Michael Riordan advance a structured, sequential decision rule for predatory pricing that features a “facilitating market structure” as its first component and “probable recoupment” as its third. See Bolton, Brodley & Riordan, *supra* note 82, at 2262–85. Even though their discussion of the latter often seems to understand it in terms of market power after predation is successful (see, e.g., *id.* at 2270 (“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”)), while their discussion of the former suggests that it is both similar and close to a traditional market power inquiry (see, e.g., *id.* at 2264 (“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.”); *id.* at 2265 (“These factors are proxies for market power . . .”); *id.* at 2283 (referring to their first factor as a “market power screen”)), they do not connect or compare these distinct (and nonconsecutive) components of their overall test that they present as grounded in *Brooke Group*.

The decision in *Spirit Airlines, Inc. v. Northwest Airlines, Inc.*, 431 F.3d 917 (6th Cir. 2005), is instructive on this question. The court both stated the standard two-element monopolization rule at the outset of its legal analysis, see *id.* at 932, but later (and with no mention of the foregoing), after its discussion of monopoly power, makes reference to *Brooke Group*’s two requirements, see *id.* at 937, 947, in a manner suggesting (but not stating) that the court viewed *Brooke Group*’s demands as an elaboration of the second, act requirement under the traditional monopolization test. Regarding the possible overlap between the market power and recoupment inquiries, see also *supra* section III.A, a number of points stand out. First, the court’s entire legal analysis began with the question of the relevant market, as is common, including a substantial discussion of the product market, addressing a substantial dispute on the matter without reference to how it relates to the analysis that follows. See *id.* at 933–35. The next, separate section on monopoly power presents standard legal formulations, but when it moves to the case at hand largely presents commentary in support of the plausibility of predatory pricing in the present context, which would seem more to go to the analysis of the alleged predation, at the core of the second monopolization element, which the court has not yet reached. See *id.* at 935–37. After a subsequent, extensive section applying the price-cost test, the court follows with a section on barriers to entry, see *id.* at 946–47, which comes after its discussion of monopoly power and precedes its discussion of recoupment—that is, it is separated from both although it is commonly regarded to be part of each. (It is also noteworthy that the entirety of the substantial (thirty-three page) opinion fails to address what the competing explanation(s) to the plaintiff’s depiction of the defendant’s pricing might be.)

significant, although somewhat lesser degree in attempted monopolization cases—but quantification is never offered. (This matter is deceptive because it is routine to refer to requisite market *shares*, but it has long been familiar that quite different degrees of market power can be associated with any given market share, so the quantitative question of how much market power is required is evaded.¹⁹⁹) There is also qualitative ambiguity. Of particular relevance for present purposes, it is generally regarded that a firm’s market power refers to the degree to which it can profitably elevate its price above a competitive level, but it is unclear whether this refers to its power including or disregarding the effects of its allegedly exclusionary behavior. Must an alleged predator have significant power *ex ante* or only upon consummation of its scheme? This question is critically important in light of the potentially opposing implications of these different notions of market power regarding recoupment, as explored in section III.A.²⁰⁰

Whatever might be the answers to the above questions about the monopoly power requirement, we can now return to the comparison with recoupment.²⁰¹ Does the monopoly power requirement demand more market power than enough to recoup? (If so, why?) Less? (In which event, the requirement is a *fortiori* satisfied if recoupment is demonstrated and hence is never decisive.²⁰²) Or the same? (That is, might we give content to the ambiguous monopoly power requirement in predation cases by deeming it to demand sufficient power to recoup, no more and no less? If so, then recoupment can be understood as a refinement or replacement of

¹⁹⁹See Louis Kaplow, *Market Share Thresholds: On the Conflation of Empirical Assessments and Legal Policy Judgments*, 7 J. COMPETITION L. & ECON. 243, 258–65 (2011). One way to see this point is to ask which side would prevail on the monopoly power element in a case in which both sides’ experts estimates of the defendant’s power were precisely the same: say, that the defendant could profitably raise price 12.6%; or 29.2%; or 6.8%. What court opinion, agency guidance document, or treatise even purports to answer such a question? When they state the requirement in terms of market shares, one cannot know. This problem of using market shares rather than estimates of market power is related to the difficulties (really, incoherence) associated with market definition. See, e.g., Louis Kaplow, *Why (Ever) Define Markets?*, 124 HARV. L. REV. 437 (2010). Nor is the problem assuaged by the use of vague adjectives. See, e.g., U.S. DEP’T OF JUSTICE, *supra* note 57, at 20 & n.11 (using the phrase “substantial degree of market power” and citing cases that refer to a “substantial,” “extreme,” and “high” degree of market power).

²⁰⁰See also *supra* note 170 (elaborating some of the surprising implications of the monopoly power dimension in monopolization and attempts cases).

²⁰¹The discussion in the text here, combined with the analysis in the rest of this article, makes it hard to understand proposals of some commentators regarding how the apparent presence of both monopoly power and recoupment requirements should be addressed. In particular, some suggest that recoupment be abandoned in favor of monopoly power, without addressing the core ambiguities of that doctrinal concept. See, e.g., Leslie, *supra* note 17, at 1746–51 (“The correct focus for section 2 analysis is on market domination, not recoupment. Yet courts in predatory pricing cases sometimes confuse the two concepts by suggesting that they necessarily go together. . . . The confusion between market power and recoupment is particularly acute in attempted monopolization jurisprudence. . . . The solution to this problem is simple: Treat predatory pricing claims like other section 2 claims. . . . [T]his analysis should take place in the evaluation of the monopoly power element, not through a convoluted recoupment requirement Proper application of the monopoly power screen should eliminate the need for the recoupment inquiry.”).

²⁰²Some discussions of the relationship between monopoly power and recoupment treat them as qualitatively similar but contemplate that recoupment may be more demanding. See, e.g., AREEDA & HOVENKAMP, *supra* note 39, at 58 (“[T]he recoupment requirement [under] *Brooke Group* is stricter, requiring a showing not merely that monopoly or its extension is reasonably likely but also that this monopoly will be sufficiently valuable to the defendant to justify the investment made in creating it.”); Leslie, *supra* note 17, at 1748 (“Recoupment requires something more; it requires the ability to earn sufficient monopoly profits to make the whole venture a worthwhile expenditure of funds.”). If recoupment is necessarily more (or at least as) demanding, then indeed the monopoly power requirement is rendered redundant. If recoupment is understood to be possibly but not necessarily more demanding, depending on the circumstances, then the challenger must meet the greater of the two to prevail. In cases in which monopoly power is stricter, the text’s question on why that should be so is apt.

the monopoly power requirement. Either way, there is, in essence, only a single requirement.)²⁰³

These head-on comparisons implicitly assume that the only differences are quantitative. But this need not be so. As elaborated in section III.A, our recoupment condition, which we appreciate from section I.B to be fairly complex and subtle, is not close to being one-to-one with any single (or even multiple) notions of market power. This suggests that, aside from whether there are any quantitative differences, there may well be qualitative differences. If so—and for them to make sense in a manner consistent with a separate monopoly power requirement—market power must be relevant to the optimal determination of liability in other ways, a subject explored in section III.B.

In any event, the mysteries identified in this section might in part be understood in light of the aforementioned general failure to articulate how much market power is required in Section 2 cases, why that is so, and how the answers relate to the optimal assignment of liability. Perhaps any attempt to ground recoupment in the longstanding monopoly power requirement was avoided because it was appreciated how difficult it would be to build on quicksand.

But it seems more likely that *Brooke Group*'s elaboration of recoupment reflects a number of peculiarities. *Brooke Group* and the key prior cases on recoupment arose in factual²⁰⁴

²⁰³An interesting illustration is offered by the decision, shortly after *Brooke Group*, in *Rebel Oil Co. v. Atlantic Richfield Co.*, 51 F.3d 1421 (9th Cir. 1995), an appeal from the grant of summary judgment to a defendant on market power, after the district court had limited discovery to that issue, *see id.* at 1432. The court seemed largely to examine market power with reference to that which may have existed during the recovery phase, precisely because that bore on the defendant's ability to recoup, even though it was examining monopoly power in a proceeding in which the question of predatory pricing (including recoupment) was not before the court. *See, e.g., id.* at 1434 (“In order unilaterally to raise prices above competitive levels, the predator must obtain sufficient market power. . . . Without market power to increase prices above competitive levels, and sustain them for an extended period, a predator's actions do not threaten consumer welfare.”). Yet, it ultimately concluded that there was not enough market power for a Section 2 attempted monopolization claim but remanded because there may have been enough for a primary-line claim under the Robinson-Patman Act. If the requisite market power is taken to be enough, post-predation, to satisfy the recoupment condition, than that quantum is the same regardless of the statute. However, drawing on *Brooke Group*'s distinction between the “dangerous probability[] of recouping” required under the Sherman Act and the “reasonable prospect” required under the Robinson-Patman Act, *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 224 (1993); *see* 51 F.3d at 1447, one may have in mind the same degree of market power, understood in the same way, but not needing to be demonstrated with as high a level of confidence (although it is difficult to draw a clear interpretation from the court's brief, ambiguous, and somewhat conflicting remarks on the subject—in particular, referring to the lower degree of power that may be required to enforce an oligopoly). In any event, as is typical, the court at no point suggested how much market power during the recovery period was required under either statute, either by reference to the short-run profit sacrifice (which was not before the court) or in an absolute sense. Another interesting feature of the case is that the court's analysis focused heavily on entry barriers during the recovery period, *see id.* at 1439–42, without addressing (beyond a passing mention, *see id.* at 1440) the extent to which a period of successful predation might itself have discouraged entry and expansion by rivals.

²⁰⁴*Brooke Group*, like *Matsushita*, was not a straightforward predation case, but rather one involving the prospect of recoupment in an oligopoly setting, which feature figured prominently in both decisions. *See, e.g., Matsushita Elec. Industrial Co. v. Zenith Radio*, 475 U.S. 574, 590 (1986) (“In this case, respondents allege that a large number of firms have conspired over a period of many years to charge below-market prices in order to stifle competition. Such a conspiracy is incalculably more difficult to execute than an analogous plan undertaken by a single predator.”). As suggested in section IV.A, neither case benefited from a substantial presentation of the modern economics of predatory pricing, regarding theory or evidence. And both Courts might have been significantly concerned about allowing what they saw as highly implausible, confusing cases to be decided by juries. In this latter regard, *Brooke Group* shares similarities with *Spectrum Sports*, which, as mentioned earlier in this section, was prominently cited and had been decided only months before. Furthermore, all three cases involved private suits by disgruntled competitors, which may have led the Court to be more skeptical. A further oddity regarding *Brooke Group* specifically is that the oligopoly recoupment that was central to the plaintiff's predation explanation for the defendants' conduct supposed that the plaintiff

and doctrinal²⁰⁵ settings that were in important respects atypical. These and other features suggest that the rise of the recoupment requirement and the form it takes may be path-dependent²⁰⁶ and reflect specific features of the framing of the questions presented and the way the cases were argued.²⁰⁷ *Brooke Group* was a case in which the need to establish recoupment was uncontested—both the plaintiff and the dissent acknowledged the need for recoupment but thought that the evidence was sufficient²⁰⁸—and the focus, accordingly, was not on how

firm itself may have been involved in legally (and politically) risky oligopoly pricing that its own executives (perhaps for those reasons) denied. See *Brooke Group*, 509 U.S. at 237–38; *id.* at 255 n.15 (Stevens, J., dissenting).

²⁰⁵This dimension refers to *Brooke Group* being a Robinson-Patman Act case but articulating the law for Sherman Act Section 2 cases as well. In addition, *Brooke Group* drew heavily on *Matsushita*, a Sherman Act Section 1 case, and to a lesser degree on *Cargill*, a Clayton Act Section 7 case—which is to say that none of the Court’s cases on recoupment involved Section 2, regarded to be the core provision addressed to monopolistic exclusion, including via predatory pricing. (In *Matsushita*, the appellate court found that the alleged horizontal predatory pricing conspiracy would be a per se violation of Section 1, so the question on which the Court’s analysis of predatory pricing more broadly and recoupment in particular was focused was whether there was a plausible basis to infer a conspiracy in light of the seeming implausibility of the alleged scheme. See *Matsushita*, 475 U.S. at 584–85, 593.)

²⁰⁶In addition to the items mentioned in the two preceding footnotes, there is a key quantitative aspect: in *Matsushita*, which started the line of cases presenting a recoupment requirement for predation challenges, the Court understood the plaintiff to be claiming (perhaps over-claiming, ultimately to its detriment) that the defendants had incurred staggering losses, making the claim seem particularly far-fetched with regard to recoupment. This, in turn, may have helped bring recoupment to the forefront, including its being listed as a separate “prerequisite” rather than being regarded as part of a broader assessment of whether a plaintiff’s theory was plausibly supported by the evidence. Also interesting in this regard is that one of the dissent’s responses was that the defendants may well not have been rational profit-maximizers: “The Court, in discussing the unlikelihood of a predatory conspiracy, also consistently assumes that petitioners valued profit-maximization over growth. . . . In light of the evidence that petitioners sold their goods in this country at substantial losses over a long period of time, . . . I believe that this is an assumption that should be argued to the factfinder, not decided by the Court.” *Matsushita*, 475 U.S. at 604 (White, J., dissenting). This response challenges not only the foundation of the recoupment requirement but also the basis for much antitrust analysis, and it too may have a sui generis character given the time period and that the alleged below-cost pricing involved Japanese firms. In discussing this case prior to the Supreme Court’s decision, Frank Easterbrook offered an alternative interpretation of the implausibility of significant recoupment, following the logic of triangulation: “The predation recoupment story therefore does not make sense, and we are left with the more plausible inference that the Japanese firms did not sell below cost in the first place. They were just engaged in hard competition.” Easterbrook, *supra* note 93, at 27. He subsequently applied a similar line of reasoning as a judge in *A.A. Poultry Farms, Inc. v. Rose Acre Farms, Inc.*, 881 F.2d 1396, 1401 (7th Cir. 1989), *cert. denied*, 494 U.S. 638 (1990) (“The investment must be recouped. If a monopoly price later is impossible, then the sequence is unprofitable and we may infer that the low price now is not predatory.”).

²⁰⁷Stephen Calkins emphasizes that the *Brooke Group* Respondent conceded the Petitioner’s preferred answers to their questions presented and that the opposing lawyers could not agree on what the disagreement was about, up through the end of the oral argument. See Calkins, *supra* note 162, at 382–83, 403. *Brooke Group* is also unusual in that, after disposing quickly of the legal question the majority deemed to be before the Court (whether the possibility of oligopoly recoupment was foreclosed as a matter of law; the Court held it was not), the core of the opinion was devoted to a de novo review of the sufficiency of the evidence (drawing criticism from the dissent). Furthermore, Calkins states that some of the Court’s factual analysis of recoupment drew on material not in the appellate record and departed significantly from the defendant’s argument. See Calkins, *supra* note 162, at 385–90.

²⁰⁸Moreover, the dissent pointed out that the jury was instructed that it must find recoupment, which, since it returned a verdict for the plaintiff, presumably it did. See *Brooke Group*, 509 U.S. at 254 (Stevens, J., dissenting) (“[P]redatory price cutting is not unlawful unless the predator has a reasonable prospect of recouping his investment from supracompetitive profits. . . . The jury, of course, was so instructed, . . . , and no one questions that proposition here.”); *id.* at 244 n.2 (“The jury made its finding after being instructed that ‘injury to competition’ means ‘the injury to consumer welfare which results when a competitor is able to raise and to maintain prices in a market or well-defined submarket above competitive levels. In order to injure competition in the cigarette market as a whole, Brown & Williamson must be able to create a real possibility of both driving out rivals by loss-creating price cutting and then holding on to that advantage to recoup losses by raising and maintaining prices at higher than competitive levels. You must remember that

recoupment fits into the broader landscape but on whether the facts were sufficient to find recoupment in the case at hand. Furthermore, the inherent interconnection between recoupment and other aspects of a coherent predation inquiry—the focus of much of this article—was obscured because only recoupment was before the court.²⁰⁹ In light of all these considerations, it is less surprising that *Brooke Group* does not address, coherently or at all, a number of pressing questions concerning how recoupment fits in with broader antitrust doctrine or sensible analysis of predatory pricing. As a consequence, the case fails to provide clear (or any) guidance on a number of features of predatory pricing analysis.

B. Structured Decision Rules

The decision framework articulated initially in section I.A and its implications for the triangulation process highlighted in section I.C provide a basic guide to the conduct of analysis in predatory pricing cases. Much of parts I–IV flesh out the methodology, with a particular emphasis on the role of recoupment.²¹⁰ Unfortunately, these basic principles appear to be in conflict with what some claim to be—or argue should be—the applicable legal framework.

In many areas of antitrust law, structured decision rules are advanced that do not closely align with an optimal framework for the assignment of liability.²¹¹ In monopolization cases, it is

the Robinson–Patman Act was designed to protect competition rather than just competitors and, therefore, injury to competition does not mean injury to a competitor.” (emphasis added)). However, it appears that other instructions permitted the jury to reach its conclusion through other channels, making it unclear whether the jury in fact found recoupment. *See* Calkins, *supra* note 162, at 379–82. The majority did not address the question (although the problem was emphasized in the Respondent’s brief; *see id.* at 382), instead devoting its attention to whether the facts were sufficient to support such a finding and concluding that they were not.

²⁰⁹*See Brooke Group*, 509 U.S. at 218–19. There is much to the dissent’s point that a reasonable factfinder could infer from a firm’s incurring substantial losses from its below-cost pricing (a fact that was taken to be true for purposes of the decision), combined with internal documents evidencing a predatory plan and the firms’ historical success in oligopoly pricing, that recoupment would follow. *See id.* at 257–58 (Stevens, J., dissenting). Recall the discussion in section I.C of the proposition that PP⇒R. The majority, based on its own analysis of the facts, finds ~R, which implies, by its logic regarding the imputation of rationality, ~PP. But that conclusion is inconsistent with regarding the plaintiff to have established PP for purposes of its decision. *See id.* at 231. Implicitly, it either invoked logic and rationality to repeal the laws of logic, or it implicitly did not take PP as having been established. (Interestingly, in its closing paragraph, the majority explicitly stated that the “evidence of below-cost pricing,” along with other evidence, was insufficient support a verdict for the plaintiff. *Id.* at 242–43.) Neither opinion directly confronted this apparent contradiction with respect to what was taken to be established for purposes of the case before it.

²¹⁰A central element of section I.A’s framework that is developed further at many points concerns the magnitudes of harm and benefit conditional on the anti- or procompetitive explanation being valid. This vital feature is set to the side in this section, although its omission in analyzing actual cases can be a further casualty of the sequential, siloed type of decision rule criticized here.

²¹¹Even if the rules themselves do not demand a sequential, siloed approach, commentary and agency guidance often proceed in this fashion and offer it as a model of how analysis should be conducted. Consider, for example, the illustrative analysis for predatory pricing cases offered in JORDI GUAL ET AL., REPORT BY THE EAGCP: AN ECONOMIC APPROACH TO ARTICLE 82, at 51–53 (2005), which generally advocates an approach that attends to economic effects rather than legal formalism. Almost the entirety of their illustrative analysis focuses on the anticompetitive explanation for the alleged predation. In this regard, the authors emphasize the importance of clear specification of the alleged predation story. *See id.* at 53 n.40. Only in the section’s final sentence do they suggest: “If [the agency has made certain that these key facts are present] and if the evidence of predatory pricing is sufficiently strong, the burden of proof for a convincing efficiency defense of its conduct should switch to the defendant.” *Id.* There is no previous mention of competing explanations when examining the anticompetitive story, although their discussion of predatory pricing (before the illustrative application) had emphasized the centrality of possible procompetitive explanations in framing agencies’

suggested that, first, it should be determined whether monopoly power exists; if and only if it does, second, the plaintiff's anticompetitive explanation should be assessed; and, if and only if it is sufficient, third, the defendant should be permitted to justify its behavior on procompetitive grounds. In predatory pricing cases in particular, it is often stated that the second step, pertaining to the predation explanation for the defendant's actions, is to be further divided into an inquiry into whether price is below cost and, if it is, whether there would be (or was) recoupment.²¹² (These two components are, of course, associated with *Brooke Group*'s holding. And describing them as separate from the first, monopoly power step presumes, as suggested in section A, that this requirement survives *Brooke Group*.) Further specification and variation (such as suggestions to reverse the order of the price-cost and recoupment inquiries) are postponed for the moment.

Such structured decision rules—if interpreted as such rather than as mere heuristics or checklists—are readily seen to be problematic in light of this article's analysis. The implied sequential, siloed methodology defies logic and the basic economics of the problem at hand. For example, as illustrated in part III, it is difficult to think clearly about what market power should be taken to mean or what its implications are unless one has in mind particular anti- and procompetitive explanations for the allegedly predatory pricing under analysis.

More centrally, much of this article shows how attempts to distinguish anti- from procompetitive explanations (the focus of most predatory pricing analysis) are incoherent unless one articulates both explanations at the outset, because the assessment is comparative.²¹³ Regarding recoupment in particular, part II explains how its diagnosticity varies tremendously (quantitatively and qualitatively) across competing explanations for alleged predation. With respect to some, it may not be diagnostic at all. And when it is diagnostic, the manner in which this is so can be quite subtle, and in a manner that depends on the competing explanation. So it is nonsensical to attempt to perform recoupment analysis before even asking what the defendant's explanation for its actions might be.

Even focusing on a single anticompetitive account and supposing that the only relevant competing explanation is that the defendant's pricing involved the accommodation of rivals, we have seen in sections I.C and II.B that one cannot, first and independently, assess whether the defendant's pricing involved predation (under, say, some conventionally proposed price-cost test), and then second, taking that conclusion as given, assess recoupment. Instead, the process involves triangulation. If one actually was sure that the price was predatory and not accommodating, then (combined with the ordinary supposition of rationality), recoupment would already be implied. The dual inquiry is useful precisely because there is often uncertainty about the former that might be illuminated by information about the latter.

challenge in addressing predatory pricing cases. *See id.* at 50–51.

²¹²*See also* Calkins, *supra* note 162, at 384 & n.303 (suggesting that, prior to *Brooke Group*, “[c]ourts were increasingly considering recoupment issues” but that evaluating “recoupment as a separate element of the offense was exceptional”).

²¹³As an illustration, Bolton, Brodley, and Riordan advance a structured, sequential decision rule for predatory pricing. *See* Bolton, Brodley & Riordan, *supra* note 82, at 2262–85. Its fifth and final component is business justification, and the first such justification that the defendant might attempt to demonstrate at this stage is that its price reduction was defensive, involving “a price that maximizes the incumbent's immediate or short-run profit even though its rival remains in the market”—what in the present article is referred to as accommodation. *See id.* at 2274–76. This formulation sharply raises the question of what could have been the implicit competing hypothesis when implementing the first four steps in their framework.

Section A of this part suggests a further difficulty. Assume, as suggested there, that monopoly power and recoupment are both distinct considerations. Given that they combine similar factors in similar ways, how much sense does it make to have two siloed inquiries? And moreover, why would we separate them, interposing the price-cost inquiry? Although, as mentioned below, some propose reversing the price-cost and recoupment inquiries, this is favored on the ground that recoupment may sometimes be easier, not because it may be helpful to place consecutively two inquiries—market power and recoupment—that are closely related even if somewhat distinct.

In light of these conclusions, if the recoupment requirement (called a “prerequisite” to liability by the Court in *Brooke Group*²¹⁴) is understood as a stand-alone element, and likewise for the price-cost test (also deemed a prerequisite²¹⁵), then the doctrine is illogical.²¹⁶ By contrast, if one instead follows the Court’s emphasis on rationality, which section A indicates is at the root of the Court’s introduction and development of the recoupment notion in predatory pricing cases, then the Court’s two “prerequisites” might best be interpreted as interrelated aspects of a properly conducted triangulation process. (This approach toward reconciliation of doctrinal statements and basic principles of logic and inference might likewise be offered for other components of various legal tests for predatory pricing.)

Similar remarks are applicable to other variations on proposed decision algorithms in predatory pricing cases. Notably, some suggest that courts should sometimes or always reverse the order of price-cost analysis and recoupment analysis because of the known difficulty of the former inquiry.²¹⁷ Clearly, if the two components bear the symbiotic relationship described here,

²¹⁴*Brooke Group*, 509 U.S. at 224.

²¹⁵*Id.* at 222.

²¹⁶See *supra* note 209 (explaining how seeming illogic in the majority’s analysis, which was criticized by the dissent, but not explicitly on these grounds, may help to explain the disagreement and some of the ships-passing-in-the-night character of the opinions in *Brooke Group*).

²¹⁷Reversing the two is a central feature of the approach advanced by Bolton, Brodley & Riordan, *supra* note 82, at 2267–74. See also *A.A. Poultry Farms, Inc. v. Rose Acre Farms, Inc.*, 881 F.2d 1396, 1401 (7th Cir. 1989), *cert. denied*, 494 U.S. 638 (1990) (“It is much easier to determine from the structure of the market that recoupment is improbable than it is to find the cost a particular producer experiences in the short, middle, or long run (whichever proves pertinent). Market structure offers a way to cut the inquiry off at the pass, to avoid the imponderable questions that have made antitrust cases among the most [drawn out] and expensive types of litigation. Only if market structure makes recoupment feasible need a court inquire into the relation between price and cost.”); MODEL JURY INSTRUCTIONS, *supra* note 90, at C-52 (explaining in a note that “[a]lthough recoupment is generally thought of as the second element of a predatory pricing claim, after proof of below-cost pricing, we have placed this instruction before the instructions relating to below-cost pricing because the recoupment analysis is often more straightforward than the pricing analysis, and is often dispositive”); Herbert Hovenkamp, *The Areeda-Turner Test for Exclusionary Pricing: A Critical Journal*, 46 REV. INDUS. ORG. 209, 210 (2015) (“[T]he sequence is not important, and most decisions focus on whichever element is disputed or easier to resolve . . .”). As will be noted in the text to follow, section I.B casts significant doubt on the notion that determining recoupment is substantially easier in significant cases. (Perhaps the literature’s failure to state explicitly even a simplified version of the recoupment condition has obscured the magnitude of the challenge of assessing whether it is satisfied in a given case.) Indeed, leading proponents of the recoupment requirement conclude their post-*Brooke Group* article with the acknowledgment: “Assessing the plausibility of recoupment, as the Court indicates in *Brooke Group*, is . . . accomplished by a fact-intensive examination of the market’s structure, including the factors mentioned earlier. [T]he Court went on to say that prices in the recoupment stage must ‘be sufficient to compensate for the amounts expended on the predation, including the time value of the money invested in it.’ Sufficiency of this kind requires calculation to refute or establish. At the very least, it requires quantitative estimates akin to a firm’s capital budgeting forecasts. Meticulous recoupment analysis can be attempted. But it is an undertaking that invites complexity matching if not exceeding that of estimating average variable costs from business accounting data.” Elzinga & Mills, *supra* note 103, at 584.

and the correct way to analyze them involves triangulation, then arguments about the proper order in which to consider and decide them are incoherent.

This negative conclusion does not always follow because, to the extent that one is attempting to quickly dispose of obviously weak cases—an important task examined further in section C—rather than to resolve serious ones, it may be that this is more often possible by starting with recoupment. However, as explained in section II.B, there seems to be significant confusion on this matter: How can one assess whether recoupment (usually referring to the long-run profit recovery) is sufficient without attending to how much must be recouped? If significant market power—monopoly power or a dangerous probability thereof—is required,²¹⁸ and this is seen as an earlier hurdle that has been overcome, then we are considering cases in which it seems difficult to conclude that the long-run profit recovery will obviously be trivial.²¹⁹ Once we are at that point, it is necessary to have an estimate of the short-run profit sacrifice. As explained in detail in section I.B, an important input to such an estimate is information on the defendant's costs—including its incremental costs of supplying the additional output required under a predation strategy—the very thing that the proposed reversal aims to avoid.²²⁰ Also recall the discussion in section II.B of the tension between the competing explanation of accommodation and the recoupment demand: the more confident we are that the defendant's pricing was not mere accommodation, the greater is the short-run profit sacrifice, and hence the more difficult it is to establish recoupment.²²¹

Note that the aforementioned criticism applies at a number of levels. This article has cast its analysis in terms of making optimal liability determinations in light of the available, uncertain, and often conflicting information. Sometimes, these matters are also cast in terms of how to design an optimal information acquisition process. In that realm as well, similar principles govern. In particular, the stated interdependencies—and even basic questions regarding what counts as relevant evidence on classification—necessitate articulating explicit competing explanations and typically require that one proceed in an interdependent fashion. In addition, evidence often naturally clumps not by topic but rather by source. Key documents, internal emails, fact witnesses (typically, firms' decision-makers and analysts upon whom they relied), and experts may be distinct from each other, but each may supply information on any or all of the key factors (which is necessarily true for factors that are not logically separate to begin with).²²² Nor is such sequential structuring a good description of how litigation is or ought to be

²¹⁸Perhaps because of *Brooke Group's* failure to restate the monopoly power requirement, as discussed in section A, it is easier to forget that, under the standard doctrinal framework, this must be established, meaning that cases in which it is obvious that the maximum possible long-run profit recovery is trivial will fail the monopoly power requirement anyhow. If the recoupment requirement were seen as replacing the monopoly power requirement, however, then such ready disposals of weak cases would naturally be described as involving a failure of recoupment.

²¹⁹Sometimes this is suggested to be straightforward because entry would be easy. However, it is standard that entry barriers must be established to demonstrate monopoly power. Moreover, as explained in section III.A, this way of thinking can be dangerous because many of the settings in which predation is plausible involve, via reputation, the erection of a strategic entry barrier that was not previously present.

²²⁰As explained there, cost is also an input to the estimation of the long-run profit recovery.

²²¹As developed there, the problem is more subtle than meets the eye and, in any event, requires deep engagement in triangulation, which is inconsistent with separating the two issues and deciding them in either order.

²²²An important (and familiar) example involves the defendant's internal documents. To resolve ambiguities, one must simultaneously consider the multiple possible interpretations; it is hard to see how one can ask if a document really says one thing without even imagining what else it might possibly mean.

conducted. (Some argument advancing sequential decision rules is presented as if²²³ there would be, say, a preliminary round of discovery, including review of emails and depositions of a defendant's key decision-makers, and exchanges of expert reports with further depositions, on the question of market power, followed by a summary judgment decision and possibly a trial on just that issue. Then, if the plaintiff prevailed, there would be a second round of email review, depositions, and expert reports on price versus cost, followed by summary judgment and trial; then, if the case is still alive, a third round on recoupment; and, finally, a round on the defendant's proffered justification for its pricing.²²⁴)

Returning to where we began, the central conclusion of this section is that structured decision rules that make siloed, sequential decisions—and corresponding attempts to gather evidence in such a manner—are not conducive to sensible decision-making or investigation, by courts or by competition agencies. The difficulty lies not just with the particular rules that have been advanced—for Section 2 cases in general or predatory pricing claims specifically, although the most common proposals have idiosyncratic flaws as well. Rather, the problem is deeper, relating to the nature of an optimal framework for assigning liability and the triangulation required when combining conflicting evidence. To the extent, however, that one takes structured decision rules more as heuristics or as check-lists that offer suggestions for how some weak cases may readily be removed from the legal system, then they do have some value.²²⁵

C. Legal Institutions and Screening

Although the present investigation is not centrally about legal practice, this section offers a few observations. The framework presented and applied in part I and elaborated in parts II–IV indicates that the analysis of recoupment and predatory pricing more broadly is notably more complex than is recognized, a concerning proposition in light of the fact that most already regard

²²³Interestingly, although structured decision rules are often advanced in antitrust without addressing such matters, some commentators have specifically raised the possibility of bifurcation in predatory pricing cases. *See, e.g., AREEDA & HOVENKAMP, supra* note 39, at 53–57 (examining bifurcation of pretrial proceedings, presenting several challenges, and noting its limited use); Joskow & Klevorick, *supra* note 3, at 260–61 (proposing bifurcation, allowing first for discovery and a trial on “issues of structural monopoly” and then, if the plaintiff prevailed, another round on remaining issues). Rather different on the practical side would be an agency—or a court proceeding more in the style of some continental legal systems—proceeding sequentially. *See, e.g., Rebel Oil Co. v. Atlantic Richfield Co.*, 133 F.R.D. 41, 44 (D. Nev. 1990) (limiting initial discovery in a predation case to market power, after which summary judgment was granted for the defendant on that issue). However, as the analysis here suggests, the optimal way to proceed would be quite different than that embodied in typical structured decision rules and associated bifurcation proposals. Instead, one would look first to whatever sources of evidence seemed likely to be most probative (in any manner) relative to the cost of gathering the evidence, and proceed accordingly, pausing along the way to see whether, based on the information accumulated so far, it made sense to enter a finding of liability, to decide that there is no liability, or to gather yet additional information. *See generally* Kaplow, *Multistage Adjudication, supra* note 99. Relatedly, bifurcation by issue raises the problem that how evidence on that issue should be interpreted and what is its ultimate import often depend on the interaction with other (subsequent) issues.

²²⁴Even if one confines attention solely to how trials are conducted—which massively reduces the impact since this omits agency investigations along with the large portion of civil litigation that transpires before trial—the imagined structured decision rule is substantially misleading. Trials are not in fact ordinarily sequenced in the contemplated fashion, with the factfinder rendering a decision on each component along the way. The primary exception is that defendants often move for a judgment as a matter of law at the close of a plaintiff's case, and these are sometimes granted.

²²⁵Even so, the ordering is problematic in that it suggests, if there is a real contest on an earlier question, that disagreements must be resolved before reaching later ones that might quickly dispose of the case.

it to be highly challenging.

Enforcement agencies—important in the United States and even more central in other jurisdictions—are in the best position to capitalize on this article’s lessons, both in organizing their information gathering in individual cases and in undertaking the requisite triangulation that economic logic demands. Moreover, agencies issue guidance that can help private actors understand what to expect and educate courts.

Courts themselves—and juries, in the United States—face a more imposing task.²²⁶ The modern economics of predatory pricing has the virtue of being more sound and realistic, but it is also more varied and subtle, often highlighting the relevance of facts that may be difficult to discern. For many decades, price-cost tests and then a recoupment requirement have been advanced in significant part to simplify decision-making.²²⁷ This goal has proved partly elusive for the former, a point that is familiar and serves as a motivation for adding a recoupment requirement. As demonstrated throughout, beginning with section I.B’s elaboration of just what the recoupment condition actually states, assessment of the recoupment requirement may be harder still. Most obviously, this is because the recoupment condition depends in part on the alleged predator’s cost structure, and in many ways.²²⁸ Moreover, the recoupment requirement’s relevance (if any) is often highly subtle and varies with the competing explanation under consideration. In addition, the structure of litigation in U.S. courts is not obviously conducive to organizing the gathering of facts and their assessment in a manner that economizes on effort and sharpens decision-making. In this respect, however, federal courts do have substantial power, if they wish to exercise it—for example, in structuring discovery, using magistrates, and employing court-appointed experts.²²⁹

An imperative for both agencies and courts is to screen out weak cases as quickly and cheaply as possible, without also eliminating meritorious ones.²³⁰ Agencies’ flexibility is particularly helpful in this regard, and the analyses of triangulation and of the comparisons between different alternative explanations for alleged predation clarify how this might better be

²²⁶This institutional difference might help to explain why recoupment is usually described as a requirement in the United States but a consideration in the European Union. *See supra* note 176.

²²⁷In particular, it may well be that a significant motivation was to keep complex and possibly weak cases from juries: *Matsushita* held that the defendant was entitled to summary judgment (on a massive record), and *Brooke Group* decided that the defendant was entitled to a judgment as a matter of law, after a (taken to be properly instructed) jury had found for the plaintiff. Moreover, as explained in section A, *Brooke Group* did so on the heels of *Spectrum Sports*, where the Supreme Court acted similarly—there, in overturning a jury’s decision, insisting on an independent monopoly power requirement that could not be satisfied by logical inference from other facts in the case. In both *Matsushita* and *Brooke Group*, the Court examined the facts in detail in reaching the conclusion that they were insufficient for a reasonable factfinder to impose liability. These cases do not appear to be isolated; rather, federal courts over the past decades seem increasingly willing to dispose of complex antitrust and other cases that the tribunal deems to be weak.

²²⁸*See also supra* note 217 (quoting Elzinga and Mills, regarded to be the requirement’s leading proponents, on other respects in which recoupment assessments are factually challenging).

²²⁹*See generally* AMERICAN BAR ASSOCIATION SECTION OF ANTITRUST LAW, PRESIDENTIAL TRANSITION REPORT: THE STATE OF ANTITRUST ENFORCEMENT 17–19 (Jan. 2017) (proposing consideration of litigation restructuring in the antitrust context); Kaplow, *Multistage Adjudication*, *supra* note 99, at 1221–29 (on the optimal structuring and sequencing of adjudication).

²³⁰The exposition in this section, like some other parts of the article, simplifies by focusing on classification. As emphasized in sections I.D and II.E, however, magnitudes—of both anticompetitive harm and the costs of chilling procompetitive behavior—matter greatly and, where possible, they should also play a role in screening decisions. Notably, when potential harm is likely to be modest at most or the chilling costs would be unusually large, a decision-maker should be more inclined to dispose of marginal cases, and conversely.

done. U.S. courts rely on a combination of standards for motions to dismiss²³¹ and for summary judgment²³² and, in antitrust, particularized rules designed to ease sorting.

This article emphasizes how the rules for predation cases, and recoupment in particular, may often be more difficult to apply in serious cases than it is to examine directly the core question that they are designed to illuminate. In this respect, it is important to consider whether internal evidence—interpreted carefully, through the lens of modern analysis and with a better understanding of competing explanations—might be useful more often than is generally assumed.²³³ Granting the familiar limitations, it is essential to compare the alternative: an ex post battle of paid experts in litigation, when many of the facts they need to employ are difficult to observe, extract, infer, or impute.

The central screening concern, however, is not the prompt removal of a handful of seemingly serious cases that are, upon analysis, actually weak. Instead, the problem is the possibly large number of much weaker cases that, if rules are too lax, might be filed in the hopes of extracting settlements or hitting the jackpot with an inexperienced and readily confused factfinder.²³⁴ Given the complexity of recoupment inquiries—how they vary with the competing explanation for the alleged predator’s conduct, their surprising subtlety, and that they do not avoid the need to inquire into the defendant’s cost structure—it is unclear how much recoupment analysis can aid in this endeavor. The hope is that, with cases that are in fact very weak, the inability to recoup may often be obvious.²³⁵ The important question is whether that is so in an

²³¹See, e.g., *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 556 (2007).

²³²See, e.g., *Matsushita Elec. Industrial Co. v. Zenith Radio*, 475 U.S. 574 (1986).

²³³See, e.g., *Discussion Paper on Article 82, supra* note 109, ¶¶ 113–14 (“Direct evidence of a predatory strategy can consist of documents from the dominant company, such as a detailed plan demonstrating the use of predatory prices to exclude a rival, to prevent entry or to pre-empt the emergence of a market, or evidence of concrete threats of predatory action. Such evidence needs to be clear cut about the predatory strategy and for instance indicate the specific steps the dominant company is taking and not just concern company internal general talk that the dominant company ‘will crush the competition.’ In case of such direct evidence it does not need to be shown that also other elements point towards predation. It may be assumed that the dominant company, as it has devised a clear strategy to predate, also has the means to predate and that its pricing behaviour does or will eliminate or discipline the rival in question and thereby have a negative effect on (the growth of) competition in the market.” (footnote omitted)).

²³⁴Consider the rather different approach noted in section IV.C of limiting predation claims to episodes that have run their course and been successful. Because myriad entrants in a wide range of industries fail, and often their entry will have provoked price reductions, such an approach, standing alone, seems insufficient to screen out many potentially weak cases.

²³⁵See, e.g., *Brooke Group*, 509 U.S. at 226 (explaining that “[d]etermining whether recoupment of predatory losses is likely requires an estimate of the cost of the alleged predation and a close analysis of both the scheme alleged by the plaintiff and the structure and conditions of the relevant market,” but noting that “[i]n certain situations—for example, where the market is highly diffuse and competitive, or where new entry is easy, or the defendant lacks adequate excess capacity to absorb the market shares of his rivals and cannot quickly create or purchase new capacity—summary disposition of the case is appropriate”); U.S. DEP’T OF JUSTICE, *supra* note 57, at 69 (“The Department believes that the recoupment requirement, when properly applied, serves as a valuable screening device to identify implausible predatory-pricing claims. In many instances, the *obvious* inability of a firm to recoup *any* losses may obviate the more difficult task of determining whether prices were below cost.” (emphasis added)); Janusz A. Ordovery, *in* HEARINGS, *supra* note 165, at 70 (stating that sometimes “there is no need to somehow construct this potentially complicated analytics” because industry structure is such that “you know, quick as a bunny, somebody else is going to show up who may be [an] even more competitively advantaged rival”). Recall as well the point in section I.D that, when the maximal possible profit recovery is small, it will usually be true as well that the magnitude of social harm conditional on the defendant’s pricing actually being predatory (one might imagine both a very small profit sacrifice and an almost-as-small profit recovery) is low as well. Another aspect of triangulation would note that, if the maximal recovery is small, placing a cap on the short-run sacrifice (continuing to assume rational profit-maximization by the defendant), then perhaps such a

important subclass of cases in which other screens would fail—notably, when a monopoly power requirement has been satisfied and a price-cost test (or whatever other substantive requirement might be imposed) is plausibly met.²³⁶ As noted previously, it is mysterious how often significant monopoly power (including with respect to duration²³⁷) would plausibly be established but the prospect of any long-run profit recovery would nevertheless be obviously absent.²³⁸

Adding recoupment to the mix may nevertheless be helpful because there is little sense of how much monopoly power is understood to be required. Here, we can say: at least enough to plausibly recoup. But we also must remember that knowing how much is enough requires estimation of the short-run profit sacrifice (arguably, from an *ex ante* perspective), itself a difficult undertaking and one that, if a significant estimate is produced, creates a serious tension with a defendant’s claim that its pricing involved accommodation and hence no short-run sacrifice. It is worth asking how well courts can screen cases with a recoupment requirement that is poorly understood in terms of both its content and import. The alternative is to try to focus directly on the pertinent anticompetitive strategy (which a challenger might be required to articulate and prove more sharply) and the defendant’s proffered competing explanation (which also would be elaborated and proved, rather than left murky or ignored altogether).²³⁹ In any event, a prerequisite to effective screening is a clearer appreciation of the logic underlying recoupment and predatory pricing analysis more broadly. The best ways to screen, after all, are parasitic on the proper way to make ultimate decisions.

modest price cut relative to accommodation would be unlikely to drive out or discipline rivals. (This line of reasoning need not be correct, however, which can be seen as a corollary of the fact that there may exist a zone of legal predation. *See supra* section II.C.)

²³⁶The meaning of the other requirements being “met” would depend on the procedural stage. For example, to survive summary judgment, a plaintiff would have had to offer sufficient evidence on these issues to require resolution by the factfinder. Keep in mind also, from section III.A, that it makes a great deal of difference whether monopoly power is meant to refer as the power before engaging in predation or after predation is successful, the latter being the notion that makes the recoupment condition more likely to be satisfied (the former militating against its satisfaction).

²³⁷*See, e.g.*, U.S. DEP’T OF JUSTICE, *supra* note 57, at 20 (making clear in its early chapter on monopoly power that “the power in question is generally required to be much more than merely fleeting; that is, it must also be durable”).

²³⁸As discussed in section III.A, perhaps a benefit of thinking about recoupment is that it highlights the need to distinguish between the level of market power without the effects of the alleged predation (a higher level implying greater profits under accommodation, which makes the recoupment condition harder to satisfy) and the level of market power with the effects of successful predation (a higher level raising the long-run profit recovery, helping to satisfy the recoupment condition). Recall, however, that there is a potential difficulty raised by the commonly offered reason, the ease of future entry, *see, e.g., supra* note 165, 235 (quoting Ordovery), that the latter notion of market power would clearly be low and hence the recoupment condition would obviously fail to be satisfied: if it is plausibly argued that the defendant’s predation would itself erect a strategic entry barrier, scaring future entrants away, then it is no longer obvious that the defendant would be unable to recoup, which is to say that it is no longer clear that market power, taking into account the effect of successful predation, would be low.

²³⁹For example, one of the *Brooke Group* majority’s strongest arguments was that the defendant also offered price reductions to wholesalers in markets not served by the plaintiff and in other ways behaved inconsistently with a firm bent on predation. *See Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 241–42 (1993). This point goes directly to which explanation is more likely and does not bear in an obvious manner on the recoupment condition, the purported focus of the Court’s discussion. In this respect, the decision was an exercise in triangulation, although without much guidance on how that should be undertaken.

VI. Conclusion

Consideration of whether a firm alleged to have engaged in predatory pricing can have expected to recoup its short-run profit sacrifice through a subsequent enhancement to profits has become a central consideration under U.S. antitrust law and plays a role in other jurisdictions. Yet fundamental questions remain unanswered, with many unasked. How can one reconcile recoupment's failure due to a large, unrecoverable short-run profit sacrifice with the view that there was no predation and hence no profit sacrifice in the first place? How can the assessment of recoupment be diagnostic when the competing explanation for alleged illegal predation likewise requires recoupment? Does the recoupment requirement define, augment, or replace the preexisting monopoly power requirement that depends on similar information?

To answer these and other questions, this article begins from the beginning, grounding recoupment analysis in a framework for the optimal determination of liability. Recoupment may be relevant because it aids in classification: the determination of whether conduct involves actual predation or some other, procompetitive behavior. Central to any such inquiry is careful up-front specification of the two (or more) competing explanations for the alleged predator's conduct, which is rarely done. Recoupment may also bear on the magnitude of potential deterrence gains and chilling costs, channels of relevance that are also ignored.

This article first states the recoupment condition itself. Inspection immediately reveals that it is more complex and subtle than is appreciated. Notably, an alleged predator's cost structure (including its incremental costs of predatory quantity increases) is relevant in numerous ways, calling into serious question the view that recoupment analysis can be performed without confronting the challenge of examining costs.

Next, the logic of the recoupment inquiry is elaborated. In seriously contested cases in which recoupment may be decisive, there will exist both nontrivial evidence that predation occurred, which itself implies that the recoupment condition is satisfied, and also evidence that casts recoupment into doubt, which calls into question whether predation took place. These competing inferences can only be reconciled through a process of triangulation, which considers all the evidence bearing on predation together (contrary to proposals and practice) and recognizes that recoupment is of derivative significance: that is, it is important because of how it bears on the likelihood and magnitude of anti- and procompetitive effects, not in its own right.

Alternative explanations for alleged illegal predation are a central focus in the analysis, most directly because satisfaction of the recoupment condition bears quite differently depending on what types of behavior are being distinguished. If the alleged predation is claimed to involve what is in essence a procompetitive investment—such as product promotion that entails short-run losses to generate future profits—recoupment is not *prima facie* diagnostic because this alternative hypothesis requires recoupment as well. The primary, often implicit, competing explanation is that there was no predation, just accommodation: that is, the alleged predator charged the short-run profit-maximizing price in light of the new competitive circumstances resulting from entry. Then, recoupment is diagnostic, but the matter is surprisingly subtle. In part, stronger evidence of a short-run profit sacrifice both rules out accommodation (thus favoring predation) and makes demonstration of recoupment more difficult. If instead the competing explanation is *legal* predation—profit sacrifice to drive out entrants, but not involving a price below the pertinent measure of cost—we again have a situation in which recoupment analysis is not obviously diagnostic because legal predation itself is rational only if the firm expects recoupment. Recoupment inquiries may nevertheless be diagnostic, but the proper

analysis is highly refined. Attention is also given to the possibility that the alleged predator made a mistake, which may seem to reconcile evidence of actual predation with evidence negating recoupment. The implications for optimal liability determination, however, are unclear in this case (which is of uncertain importance, depending on how the notion of mistake is interpreted).

Differences among alternative explanations for illegal predation are also important for reasons having to do with the magnitude of procompetitive benefits that may be chilled by the prospect of the mistaken imposition of liability. Concern for chilling effects guides the formulation of predatory pricing rules as well as the manner in which particular cases are analyzed. Yet their magnitude varies greatly across contexts: false positives are not created equal. Even when the competing explanation is mere accommodation, the consequences of chilling can be large or small. (For example, if entry by equally efficient competitors is easy, which tends to negate predation because significant long-run profit recovery is implausible, chilling costs also tend to be small.) If the alleged predator is actually undertaking procompetitive investment—such as when young tech companies incur substantial losses when developing new products and entering new markets—the costs of chilling may be immense. When it is legal predation that is chilled, by contrast, chilling costs can be negative, which is to say, benefits. Once again, we can see that it is essential to consider explicitly just what is the alternative explanation for the defendant's actions, rather than (as is usually done) leaving the matter vague until the end of the inquiry (if one gets that far).

The recoupment requirement should also be juxtaposed with the seemingly overlapping monopoly power requirement in Sherman Act Section 2 cases. Does insistence, at the outset, that monopoly power (or dominance, under TFEU Article 102) be established render recoupment redundant? Just how does monopoly power bear on recoupment? The answers become apparent when one directly inspects the recoupment condition. A higher level of market power after predation's effects are realized suggests a greater long-run profit recovery, helping to satisfy the recoupment condition. But a higher level of market power in the absence of predation actually hurts recoupment (by implying that the short-run profit sacrifice is larger and the incremental boost to long-run profits is smaller). Hence, conventional market power requirements can misfire—as can a method of recoupment analysis that emphasizes the need for high entry barriers while ignoring those potentially created by the predation itself.

Much of this article's examination of recoupment bears more broadly on predatory pricing analysis—and that of other exclusionary practices.²⁴⁰ Modern economic analysis of predatory pricing, both theoretical and empirical, has not had much impact on current doctrine and practice. In part, this gap reflects the absence of sufficient elaboration in economic research to address more directly competition law's challenges: distinguishing competing explanations for a defendant's actions, measuring the magnitude of effects (particularly chilling costs), and determining the impact of various enforcement strategies on deterrence and chilling. The latter is a central yet daunting task, for the relevant policy question is how various changes in the legal regime—whether in substantive legal rules or in the degree of different types of proof that are demanded—translate into changes in firms' ex ante behavior. A question of particular interest regarding the recoupment condition is the extent to which the legal regulation of predatory pricing should focus on demonstrated success (where ex post recoupment occurs) or also

²⁴⁰Even regarding the former, it is apparent that this investigation is hardly comprehensive. Nevertheless, as explained, it casts new light on many of the central questions.

encompass attempts, some of which may be failures (where an ex ante recoupment condition may be satisfied but not an ex post one).

The doctrinal development of the recoupment requirement in U.S. antitrust law exhibits what seems to be an idiosyncratic path dependence, influenced greatly by atypical features of the cases reaching the Supreme Court and by what types of arguments and information were (and were not) presented by the litigants. In any event, those cases and subsequent lower court decisions do not reflect an appreciation of most of the considerations elaborated in this article. Moreover, existing and proposed structured decision rules—which seem increasingly in vogue with some commentators—attempt to mold analysis in ways that are starkly at odds with the logic of optimal decision-making. Such structures disrupt rather than encourage the sort of triangulation that seems necessary when there are competing explanations for a defendant's conduct and conflicting evidence. Recoupment analysis itself is a derivative inquiry with multiple determinants, many of which are relevant in other ways, rendering incoherent the notion that recoupment should be examined in isolation from the anti- and procompetitive explanations for the alleged predator's conduct.

To improve doctrine and practice, it is necessary to begin by enhancing understanding, which is the purpose of this investigation. Progress cannot be quick or easy because of the subtlety of the problem and gaps in existing knowledge. What is the appropriate role of recoupment in predatory pricing analysis? If understood as primarily a reminder of the usefulness of examining the rationality of a proffered explanation for a firm's behavior—be it an anticompetitive one (like predation) or a procompetitive one (like product promotion)—recoupment analysis makes sense. And its greatest value may lie in screening out weak cases, although numerous limitations have been noted. In serious cases, undertaking recoupment analysis and determining its implications are vastly more demanding than is recognized. Appreciating this basic truth and understanding what lies behind it should prove to be helpful, even if it makes us realize that identification of the best way forward is even more daunting than we had feared.