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PRESERVING COMPETITION: ECONOMICS ANALYSIS, LEGAL STANDARDS AND MICROSOFT

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**PRESERVING COMPETITION: ECONOMIC ANALYSIS,
LEGAL STANDARDS AND MICROSOFT**

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INTRODUCTION

Antitrust law is a hammer, not a scalpel. It is a blunt instrument that can have a powerful impact but only against something very much like a nail—it cannot be used effectively against small imperfections, to nip and tuck so that the economy can be shaped just so.

That lesson is evident to all who have been on the receiving end of antitrust enforcement and to all who seriously contemplate that prospect.¹ It is not, however, evident to many who write about this field.

A recent article by Professor Steven Salop and Craig Romaine illustrates both the attractions of and the problems associated with the nip-and-tuck school of antitrust analysis.² Professor Salop and Dr. Romaine use the Microsoft litigation as their focus for discussion of antitrust law, or perhaps their piece stands the other way around.³ Their article reports the allegations of behavior by Microsoft that plaintiffs in litigation with

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¹ See, e.g., FRANKLIN M. FISHER, JOHN J. MCGOWAN & JOEN A. GREENWOOD, *FOLDED, SPINDLED AND MUTILATED: ECONOMIC ANALYSIS AND U.S. v. IBM* (MIT Press 1983) (describing the government's economic analysis in the *IBM* litigation and the costs imposed by such litigation).

² Steven C. Salop & R. Craig Romaine, *Preserving Monopoly: Economic Analysis, Legal Standards and Microsoft*, 7 *GEO. MASON L. REV.* 617 (1999).

³ The authors of this paper are consultants to Microsoft, while Professor Salop and Dr. Romaine are consultants to clients involved in possible antitrust litigation against Microsoft. It would be a mistake, however, to view the debate between us and Salop-Romaine as simply the product of different client interests. It is more accurate to say that the different affiliations we have reflect differences in perspective on antitrust and competition issues that are thrown into sharp relief in arguments over the Microsoft litigation. Nothing in this reply should be construed as an assertion that positions taken in the Salop-Romaine paper are litigation-driven rather than principled.

Microsoft assert constitute violations of the antitrust law.⁴ Salop and Romaine argue that each allegation could constitute evidence of a design by Microsoft to reduce competition and preserve or extend a monopoly they assume Microsoft possesses.⁵ They argue as well that the right legal standard to apply is one that draws conclusions about corporate purpose largely from the effects specific behavior has or could have and consciously frames this standard so that the benefit of the doubt goes to plaintiffs.⁶ Tilting the standard against defendants such as Microsoft is justified, according to Salop and Romaine, by the need to protect markets against the vices Microsoft's alleged acts might generate.⁷

We believe that the Salop-Romaine arguments are misguided. Though purporting to offer a middle ground, they would dramatically expand the reach of antitrust law and would provide enormous discretion to decision makers who, following their arguments, could characterize an extraordinary array of ordinary business activity as violating antitrust strictures. The standard suggested by Salop and Romaine is the wrong standard under current law and is at odds with better economic analysis. This article exposes problems with their approach, explains why it departs from current antitrust standards, and urges an approach consistent with current standards that respects the hammer-like quality of antitrust law.

I. THE ANTITRUST FRAMEWORK

Three Lessons from the Law

The basic charter of U.S. antitrust law is the Sherman Act of 1890.⁸ While not a model of clarity in all respects (a point we return to momentarily), the act makes three things plain.

The first is that its provisions are intended to reach extreme, not ordinary, conduct—which is why conduct that violates the act's major provisions constitute felonies.⁹ The provision primarily addressed by Salop and Romaine, § 2, says:

⁴ Salop & Romaine, at 619-24, 626-27, 629-30, 632-40, 642.

⁵ Salop & Romaine, at 619-20, 622-42.

⁶ Salop & Romaine, at 655-65.

⁷ Salop & Romaine, at 661-65, 670-71

⁸ 26 Stat. 209 (1890), *codified at* 15 U.S.C. §§ 1-7 (1994) (as amended).

⁹ Originally, the Act specified that violations of its provisions were misdemeanors, though it specifically authorized prison sentences as punishment. The length of potential prison terms was later extended, resulting in the classification of violations as felonies. *See* Act of July 2, 1890, ch. 647, § 1, 26 Stat. 209; Act of July 7, 1955, ch. 281, 69 Stat. 282.

Every person who shall monopolize, or attempt to monopolize . . . any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony . . .¹⁰

Similarly, the other principal provision of the Sherman Act, § 1, declares:

Every person who shall make any contract or engage in any combination or conspiracy [in restraint of trade] shall be deemed guilty of a felony . . .¹¹

Felonies are serious crimes, and these provisions expressly authorize substantial prison terms as well as hefty fines.¹² These are not akin to traffic regulations, attaching to minor infractions for business conduct that strays a bit from the path of acceptable, competitive activity. Rather, these provisions target conduct that was thought fundamentally to threaten the competitive structure of our economy.¹³

The second obvious aspect of the Sherman Act is its entirely negative character. The law does not say that US attorneys or the Attorney General must assure that every market is perfectly competitive or even that every market is competitive in any measure. It does not guarantee competitors equal shares of markets or equal access to credit or to store space or to

¹⁰ 15 U.S.C. § 2 (1994).

¹¹ 15 U.S.C. § 1 (1994).

¹² Initially, the law provided for one year in prison and a fine of \$5,000, later increased to three years in prison and fines of \$50,000, then \$100,000 for individuals (now \$350,000) and \$1 million for corporations (now \$10 million). *See* Act of July 2, 1890, ch. 647, § 1, 26 Stat. 209 (\$5,000 fine, 1 year imprisonment); Act of July 7, 1955, ch. 281, 69 Stat. 282 (\$50,000 fine, 3 years imprisonment); Act of Dec. 21, 1974, Pub. L. 93-528, § 3, 88 Stat. 1708 (\$100,000 individual, \$1 million corporate fine); Act of Nov. 16, 1990, Pub. L. 101-588, § 4(a), 104 Stat. 2880 (amending Sherman Act § 1 to increase fines from one million to \$10 million against corporations, and from \$100,000 to \$350,000 against individuals.) *See* S. Rep. No. 101-287, at 1-2 (1990) (summarizing changes). The initial \$5,000 fine in 1890 would be roughly equivalent to \$100,000 today, adjusting simply for changes in the consumer price index. If the fine were adjusted in order to remain the same size in relation to GNP, it would be roughly \$3.2 million today.

¹³ *See* *United States v. Socony Vacuum Oil Co.*, 310 U.S. 150, 221 (1940); *Appalachian Coals, Inc. v. United States*, 288 U.S. 344, 359 (1933); *Increasing Criminal Penalties Under the Sherman Antitrust Act: Report of House Comm. on Judiciary, 84th Cong., 1st Sess.*, H.R. Rep. No. 84-70, at 5 (1955); *Protection of Trade and Commerce Against Unlawful Restraints and Monopolies: Report of House Comm. on Judiciary, 51st Cong., 1st Sess.*, H.R. Rep. No. 51-1707 (1890) (seeking to protect against “evils and oppression of trusts and monopolies” within the limits of federal power).

customers or anything else. Competitors are not granted any positive rights. As a byproduct of the law's prohibitions, however, consumers and producers alike share the benefits of markets that are free from the effects of practices utterly inimical to a competitive environment.¹⁴

Third, a great deal turns on interpretation of the antitrust law. Its spare language does not proscribe specific conduct but instead targets a few generically described behaviors that undermine the operation of ordinary, competitive markets. But just what those generic behaviors do and do not include—what specific activity will get a business hammered—is not obvious on the face of the statute. Why, for example, does § 2 punish someone who “monopolizes” a market, but not someone who *has* a monopoly? Does that provide a clue to the section's meaning? It has been up to courts (aided to greater or lesser degrees by administrative agencies and commentators) to put flesh on the antitrust law's bones, to determine which conduct falls within one of the law's prohibitions and which does not.¹⁵

Interpretation and Economics

Increasingly, judges have turned to economic analysis to separate ordinary business activity—the activity of market competition—from conduct inimical to the operation of competitive markets.¹⁶ Economic analysis, however, does not always provide a single, accepted answer to the judges' questions.

Broadly speaking, two schools of economic analysis have emerged. One explains why conduct that courts might have seen as threatening ordinary market operation either does not do so or is so far from a rational business strategy as to be an improbable occurrence.¹⁷ The approach of this school

¹⁴ For explication of this point in a series of antitrust contexts, see ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* (Basic Books 1978); RICHARD A. POSNER, *ANTITRUST LAW: AN ECONOMIC PERSPECTIVE* (Univ. of Chicago Press 1976).

¹⁵ See, e.g., *Business Elec. Corp. v. Sharp Elec. Corp.*, 485 U.S. 717, 732 (1988); POSNER, *supra* note 14, at 3; William F. Baxter, *Separation of Powers: Prosecutorial Discretion, and the “Common Law” Nature of Antitrust Law*, 60 TEX. L. REV. 661 (1982).

¹⁶ See, e.g., William E. Kovacic, *Reagan's Appointees and Antitrust in the 1990s*, 60 FORDHAM L. REV. 49 (1991); Andrew M. Rosenfield, *The Use of Economics in Antitrust Litigation and Counseling*, 1986 COLUM BUS. L. REV. 49.

¹⁷ 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, 699 (1975); Frank H. Easterbrook, *Predatory Strategies and Counter-Strategies*, 48 U. CHI. L. REV. 263 (1981); Benjamin Klein & Kevin Murphy, *Vertical Restraints as Contract Enforcement Mechanisms*, 28 J.L. & ECON. 265 (1988); John S. McGee, *Predatory Pricing Revisited*, 23 J.L. & ECON. 289, 296-300 (1980). For overviews of this approach, see William H. Page, *The Chicago*

(often referred to as the Chicago School) is akin to the rationalist's reaction to reports of flying saucers—if *that* is what you think you saw, think again before spending too much time and effort deciding what to do with the little green men.

The other school of economic analysis follows a different path, postulating reasons why seemingly innocent—or at least ordinary—business activity actually could be designed to subvert competitors and, perhaps, competition.¹⁸ Writings in this genre deploy sophisticated arguments to establish that conduct that looks ambiguous or even benign should be treated as contrary to the antitrust law's constraints. These writings frequently rely on subtle distinctions to separate the conduct they would stigmatize as anti-competitive from the conduct they find pro-competitive and advocate antitrust remedies that assertedly do, if not perfect justice, its next of kin. These writings also typically rely on complex mathematical or game-theoretic models to demonstrate that important aspects of ordinary market competition can break down under certain assumptions (assumptions that are difficult, if not impossible, to verify from observable data).¹⁹ We refer to writings in this vein as belonging to the “nip-and-tuck” school of antitrust analysis. Professor Salop is one of the leading representatives of this school, and his article on “raising rivals’ costs” was one of the first missiles launched in the Chicago counter-revolution.²⁰

We use the Salop-Romaine article as our foil not because we have any special quarrel with these authors, but because their work illustrates effectively the problems that nip-and-tuck analysis, even in the hands of its ablest craftsmen, will generate. Its focus on the Microsoft case throws in

School and the Evolution of Antitrust: Characterization, Antitrust Injury, and Evidentiary Sufficiency, 75 VA. L. REV. 1221 (1989); Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 932 (1979).

¹⁸ See, e.g., Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation*, 76 AM. ECON. REV. 940 (1986); Michael H. Riordan & Steven C. Salop, *Evaluating Vertical Mergers: A Post-Chicago Approach*, 63 ANTITRUST L.J. 513 (1995); Steven C. Salop, *Strategic Entry Deterrence*, 69 AM. ECON. REV. 335 (1979). See also Lawrence A. Sullivan, *Post-Chicago Economics: Economists, Lawyers, Judges, and Enforcement in a Less Determinate Theoretical World*, 63 ANTITRUST L.J. 669 (1995).

¹⁹ See, e.g., Franklin M. Fisher, *Games Economists Play: A Noncooperative View*, 20 RAND J. ECON. 113, 117-19 (1989) (critiquing nip-and-tuck analysis as poor examples of “exemplifying theory”—theory that “does not tell us what *must* happen [but instead] what *can* happen.”).

²⁰ See Steven C. Salop & David Sheffman, *Raising Rivals’ Costs*, 73 AM. ECON. REV. 267 (1983).

sharp relief what is at stake in the analytical game economists presently are about.

II. FINDING ANTI-COMPETITIVE CONDUCT

Microsoft: Looking for Mr. Badbar

Salop and Romaine run through a litany of allegations respecting Microsoft, touching on assertions examined in past investigations and those advanced in current litigation. They acknowledge that many of these allegations are contested, but they treat the allegations as facts for their discussion of possible anti-competitive effects of business conduct. It is worth briefly reviewing the principal allegations.

Over the past decade, complaints by Microsoft competitors have focused attention on Microsoft's contracting practices, product development, product distribution, and marketing—in other words, on practically every aspect of Microsoft's operation. In the early 1990s, the Federal Trade Commission considered assertions that Microsoft had violated the antitrust laws in agreeing to develop operating systems in cooperation with IBM.²¹ The FTC investigation quickly turned from that assertion to other allegations. The FTC investigated numerous charges against Microsoft over three years but declined to pursue these matters further.²² The Department of Justice then instituted its own investigation.

Four of the issues subject to investigation by the FTC or DOJ deserve note. First, the agencies considered complaints that Microsoft allowed computer makers (commonly referred to as Original Equipment Manufacturers or OEMs) to license software on a “per processor” basis. These licenses gave an OEM a small discount if it agreed to pay Microsoft royalties on all computers shipped with the particular microprocessors designated by an OEM in a license agreement. This provision essentially

²¹ Professor William Page has concluded that the investigation's initiation was independent of complaints by Microsoft competitors but that the competitors' played an active role in pressing for examination of certain issues. Indeed, he opines that “[T]he magnitude and frequency of the contacts between Microsoft's rivals and the enforcement agencies raise the question whether some form of regularity should be imposed on the lobbying process in major cases.” William H. Page, *Microsoft and the Public Choice Critique of Antitrust*, 44 ANTITRUST BULL. 5, 11 (1999).

²² Both the Commissioners and the staff split on the question of whether there was any matter worthy of further action. The Commission declined to move forward on a 2-2 vote with the remaining Commission member not participating. The two bureaus that had looked into these matters advanced conflicting recommendations, one suggesting further inquiry, one opposing it.

relieved Microsoft of the need to monitor actual shipments of its software, allowing it instead to track only reported shipments of, for example, computers using Intel's "386" microprocessor. A second focus of investigation addressed Microsoft's treatment of those OEMs who were licensed to use Microsoft software on a given number of machines and agreed to ship at least a certain number but over the license period shipped fewer machines. Microsoft did not automatically permit such licensees to use their "prepaid balances" from one license agreement to offset amounts due under successor license agreements.²³ Third, firms complained that Microsoft made announcements of forthcoming products far in advance of their release in order to stifle sale of competitors' earlier-released products (an allegation that Microsoft produced "vaporware" when it was not producing software). Fourth, the investigators looked at complaints that Microsoft did not share sufficiently soon with other software producers information respecting the application programming interfaces (APIs) in its operating system. The APIs allow other software to use parts of the operating system to access files or to utilize links to hardware such as printers. The agencies considered the assertion that antitrust laws required Microsoft to make information respecting its APIs—which are part of the copyrighted software in any operating system—available during their development.

Although nearly all of the issues in the FTC-DOJ investigation are mentioned by Salop and Romaine,²⁴ DOJ and Microsoft settled the matter with a consent decree focusing almost entirely on the first set of these allegations, on terms for OEM contracts.²⁵ And despite Salop and Romaine's casual assertion that the contract terms at issue "raised the costs of rival operating system entrants . . . and created strong incentives for OEMs to deal exclusively with Microsoft,"²⁶ DOJ's own expert at the

²³ Some FTC staff thought that Microsoft should grant offsets against payments due under successor contracts while others thought that Microsoft should simply rebate payments whenever an OEM did not ship the amount contracted for. Other Commission staff thought that there was nothing problematic about Microsoft's treatment of OEM payments, just as staff divided on other issues in the FTC investigation. *See* note 22 *supra*. This issue did not arise for OEMs whose shipments exceeded their committed volumes; they simply owed Microsoft the agreed-upon royalty rate for their extra shipments.

²⁴ *See* Salop & Romaine, at 622 n.14 (contracting), 626, 634 n.49 (APIs), 637 n.57 (vaporware).

²⁵ *United States v. Microsoft Corp.*, 1995-2 Trade Cas. (CCH) ¶ 71,096 (D.D.C. 1995). In addition to regulating use of license provisions such as the per-processor license, the decree regulated the length of license contracts and nondisclosure terms in certain agreements with other software developers.

²⁶ Salop & Romaine, at 622 n.14.

time, Kenneth Arrow, thought the practices had relatively little impact on Microsoft's fortunes:

[Microsoft's OEM] licensing practices . . . made only a minor contribution to the growth of Microsoft's installed base. Even this minor contribution overstates the impact of Microsoft's licensing practices on its installed base barrier to the entry and growth of competing operating systems.²⁷

Professor Arrow's assumption that there is a barrier to entry—implicitly accepting the DOJ characterization of a narrow market for operating systems²⁸—is disputed, but, even accepting that, he found the accused licensing practices of little moment. In his judgment, the success of Microsoft's operating system was driven by factors that were not significantly affected by the challenged licensing practices or even by the ability of competing operating systems to gain access to particular channels of distribution.²⁹

Litigation against Microsoft by others has picked up some of the assertions not pursued in the earlier case, and plaintiffs (including DOJ) have added new allegations as well. Two sets of allegations are especially

²⁷ Declaration of Kenneth J. Arrow at 5, *available at* <<http://web.lawcrawler.com/microsoft/usdoj/cases/0049.htm>>[hereinafter Arrow Declaration]. The portion of the quote elided in the text above states Arrow's view that the contested practices were a "significant impediment to the use of the OEM distribution channel by competing operating system suppliers." In Professor Arrow's view, the practices, hence, were "anticompetitive" even though they did not alter the demand for Microsoft's operating system.

²⁸ In the agency investigations, the 1994 DOJ complaint, and the current DOJ litigation, the government has defined a narrower market than the text suggests, limited to operating systems for computers with Intel or Intel-compatible microprocessors. *See* <http://www.usdoj.gov/atr/cases/ms_index.htm> (1994 Complaint at ¶ 13, 1998 Complaint at ¶ 54).

²⁹ Professor Arrow agreed with the DOJ's characterization of the contested practices as "anticompetitive" and also agreed that the practices impeded use of the OEM distribution channel by competing operating systems' suppliers but did not support DOJ's assertions respecting the degree to which those practices noted above affected demand for Microsoft operating systems. *See* Arrow Declaration, *supra* note 27. Professor Arrow observed, however, that the consent decree was forward-looking: "The complaint and proposed Final Judgment address the effects of Microsoft's licensing practices on *future* sales of competing operating systems." The end of the challenged licensing practices five years ago, however, has not led to a surge in popularity of "competing operating systems" on Intel-compatible computers. The continued success of Windows following the elimination of the disputed contract terms provides at least *prima facie* support for Arrow's conclusion that the contracting practices did not account for the demand for Microsoft's products.

important to Salop and Romaine's argument.³⁰ One is that Microsoft gave its Web browser away at a zero price and integrated its browser into its operating system to undercut Netscape's competing Web browser.³¹ The other is that Microsoft insisted on contract terms with OEMs, with Independent Software Vendors (ISVs), and with Internet Service Providers (ISPs) that effectively excluded Netscape from access to consumers or that handicapped it in its competition with Microsoft's Internet Explorer.

Salop and Romaine state that Microsoft had a "policy of reducing the price of its browser or giving it away to some customers by bundling it with Windows."³² The intimation of a change in pricing over time is wrong, but the assertion that Microsoft's Web browser has been available at low cost or no cost is correct. From the outset, Microsoft included its

³⁰ Salop and Romaine also spend some time on a third set of allegations involving Microsoft's version of the "Java Virtual Machine" (JVM). *See* Salop & Romaine, at 632-33. Similar allegations have given rise to litigation between Microsoft and Sun Microsystems. Sun is the principal pioneer and promoter of the Java programming language which, in some versions, assertedly allows programs to be written so that they can run on any computer that contains JVM software. The allegations in issue in the Sun-Microsoft litigation are fairly complex and not essential to understanding our criticism of Salop and Romaine's arguments. The important claims in the litigation, referenced by Salop and Romaine, concern Microsoft's implementation of its license agreement with Sun in two respects. The first involves Microsoft's decision to allow a Java program to gain access to specific Windows features if a program is written to take advantage of this aspect of Microsoft's JVM. The second addresses Microsoft's decision not to design its JVM to enable a different method for allowing a Java program to access capabilities located outside the JVM (a method Sun claims is required by the license agreement and Microsoft asserts is not). Apart from the interpretation of contract language, the Sun-Microsoft controversy is over a choice between two different methods for allowing Java programs to gain access to a program external to the JVM. The choice is *not* between a restricted technology and a cross-platform technology. Salop & Romaine note that the Microsoft JVM does not degrade operation of Java programs. They treat the creation of Microsoft's Windows-oriented version of the JVM as potentially anti-competitive, however, even though that appears to provide an additional alternative for software programs. At present, programmers can choose to use the Windows-specific features in Microsoft's JVM, can write a Java program that takes advantage of features associated with certain other JVMs, or can write a Java program that should be able to run on Sun's or IBM's or Netscape's JVM as well as on Microsoft's JVM. (This is possible, for example, using the JVM being produced by Transvirtual Technologies, which implements both Sun's and Microsoft's enhancements to Java and should run programs designed for either approach. *See* <<http://www.transvirtual.com>>.) In this context, it is hard to see the Sun-Microsoft contest over Java license terms as central to the arguments Salop and Romaine advance. That, along with the complexity of the factual disputes, informs our decision not to treat this subject further here.

³¹ Salop and Romaine assert that Microsoft provided benefits that made the price of its Internet Explorer "negative" in some instances. Salop & Romaine, at 639.

³² Salop & Romaine, at 636.

Internet Explorer browser at no separate charge with OEM versions of Windows 95 and also made it generally available for free to users who could download it from Microsoft's Web site.³³ The program's third generation and later versions were more tightly integrated parts of the operating system, making various functions—such as the ability to parse Web addresses, to decipher and display Web pages—available to other software vendors through documented APIs. Installation of newer versions of Internet Explorer upgrades the relevant operating system files (deleting and replacing code) and provides an icon that makes the Internet Explorer features available directly to the end-user. Thus, unlike what most of us think of as “stand-alone” programs, Internet Explorer, whether acquired together with the operating system or subsequently, becomes part of the operating system when installed. In that sense, it is always, as Salop and Romaine say, “bundled” with Windows.³⁴

The second set of allegations, respecting Microsoft contracts with various entities, stands on less firm footing. Salop and Romaine report that “Microsoft allegedly made exclusive deals requiring certain ISPs (e.g., AOL) and OEMs (e.g., Compaq, Apple) to carry Microsoft's Internet Explorer browser instead of Netscape's browser.”³⁵ The contracts that Salop and Romaine reference separate into two groups. Neither group involves what looks like a Microsoft requirement that the other contract party deal exclusively with Microsoft.

One group, primarily contracts with OEMs, are non-exclusive licensing arrangements.³⁶ These contracts require that licensees agree to provide

³³ Microsoft's initial release of Windows 95 as an upgrade for consumers did not include Internet Explorer, though subsequent releases did. And downloads from Microsoft's Web site were available prior to the upgrade release in an integrated version.

³⁴ Microsoft's view, however, is that the concept of “bundling” is inapposite, as all of the various versions of Internet Explorer were improvements to the Windows operating system, not unrelated programs. Hence, rather than combining two different products, Microsoft was adding new or improved features to its operating system to make the system more attractive to potential customers. The different conceptions of the software—and concomitant differences in terminology—often make the discussions of a single event by Microsoft supporters and opponents difficult to follow. Even where we find Microsoft's view compelling, we will try to describe events in ways that will be comprehensible to those who approach matters from a different vantage.

³⁵ Salop & Romaine, at 636.

³⁶ See Ronald A. Cass, *Copyright, Licensing, and the “First Screen”*, 5 U. MICH. J. TELECOMM. & TECH. (Issue No. 2, 1999). See also *United States v. Microsoft Corp.*, Civil Action No. 98-1232 (D. D.C.) & *State of New York ex rel. Dennis C. Vacco, et al. v. Microsoft Corp.*, Civil Action No. 98-1233 (D. D.C.), direct testimony of Richard L. Schmalensee, Jan. 3, 1999, at ¶ 357 [hereinafter, Schmalensee Direct].

consumers a copyrighted program in its entirety, without removing any portion of it, but they do not limit OEMs' ability to carry other products that the user could substitute for any portion of the operating system, to place icons for other products in as favorable a position as icons for aspects of the Microsoft product, to provide prompts or other devices that make it easy to use the non-Microsoft program as a default, or to take a number of other steps that would facilitate competition from other programs.³⁷

The other group—principally the contract with AOL—comes closer to fitting Salop and Romaine's description. But these contracts do not provide for exclusivity in the sense of Salop and Romaine's argument nor do they support the conclusion that whatever level of "exclusivity" they granted was imposed at Microsoft's behest to give Microsoft an advantage over a competitor. AOL, for instance, provides subscribers its proprietary software that allows users to perform several functions, including gaining access to the Internet.³⁸ (AOL distributes this software for free—in large measure to potential subscribers in hopes of inducing them to join AOL.) Initially, the software included AOL's own Web browser, but improvements in other browsers prompted AOL to discuss with both Netscape and Microsoft the prospect of using one or the other in preference to AOL's Web browser in its proprietary software. Whichever firm won that competition would have an "exclusive" contract with AOL.³⁹

The question in this instance is not so much what the contract between AOL and Microsoft provides as what should be made of it. Microsoft argues that a winner-take-all competition in which one party wins necessarily results in exclusion of the losing competitor for the contract period, but it should not be anti-competitive for one competitor to participate in the

³⁷ See Cass, *supra* note 36.

³⁸ Although subscribers can rely strictly on AOL's software to access AOL features through the dial-in network or to access and browse the Internet, the AOL software allows flexibility both in access to and use of the Internet. The current version of AOL's software allows subscribers with other Internet connections to access AOL without using the AOL dial-in network. In addition, subscribers who access the Internet through AOL can use browsers other than that provided with the AOL software and can even use AOL keywords to download copies of Netscape's browser.

³⁹ The Government argues that AOL decided to contract with Microsoft because Microsoft offered AOL "preferential treatment" in its visibility on the Windows desktop. Microsoft did offer to distribute AOL's software with Windows and to make the software accessible to the user through a folder on the Windows desktop. Evidence in the record, however, suggests that the basis for the choice of Microsoft over Netscape principally was the former's provision of a "componentized" browser that allowed greater flexibility to AOL. See Schmalensee Direct, *supra* note 36, at ¶¶ 285, 405-07, 412.

contest.⁴⁰ If it would be consistent with competitive interests—either from a normative economic perspective or from the vantage of the antitrust laws—for AOL to award the contract to Netscape or to decide that neither Netscape nor Microsoft offered sufficient advantages to change from its own browser, why should it be inconsistent with those interests for AOL to choose Microsoft?

Salop and Romaine have a rather more skeptical view of all of these activities, alleged and actual. That is where we disagree most strongly with Salop and Romaine’s approach.

Thermos Problems in Antitrust Analysis

Salop and Romaine’s discussion of Microsoft is instructive in part because it illustrates the critical role of interpretive attitude in performing the analysis they suggest. The old canard about the thermos is that it must possess a marvelous intelligence; it keeps hot things hot and cold things cold—but how does it know which to do? The same problem of characterization makes Salop and Romaine’s approach dependent on thermos-like intelligence. Consider three allegations of anti-competitive conduct by Microsoft.

One is that Microsoft entered into contracts with OEMs that did not all expire at the same time. Salop and Romaine explain:

[C]ontracts that do not all expire at the same time . . . increase[] the coordination problem and entry costs facing the new entrant. If all the contracts expired at the same time, the entrant might be able to coordinate its entry and the start dates of its own contracts.⁴¹

For Salop and Romaine, a commitment to use Microsoft’s product necessarily excludes competing products from access to those customers. This means that other products can compete effectively only when such

⁴⁰ *Id.* at ¶ 203. See also Harold Demsetz, *Why Regulate Utilities?*, 11 J. L. & ECON. 55 (1968) (under appropriate conditions—specifically, all production inputs available to bidders at prices determined in the market and no collusion among bidders—competitive bidding in natural monopoly setting results in competitive prices); Richard A. Posner, *The Appropriate Scope of Regulation in the Cable Television Industry*, 3 BELL J. ECON. 98, 115 (1972) (critiquing overregulation of bidding for cable franchises; “As long as there [is] more than on bidder and collusion among bidders [is] prevented – conditions that ought not to be insuperably difficult to secure – the process of bidding subscriber rates down and quality of service up would eliminate monopoly pricing and profits.”)

⁴¹ Salop & Romaine, at 638 n.58.

contracts expire. Viewed from the perspective of concern over any action that raises rivals' costs, the increase in coordination problems for competitors to Microsoft suffices to sustain a conclusion that use of contracts without uniform termination dates is anti-competitive.

Yet, imagine that Microsoft had insisted that all OEMs or ISPs or others who contracted to use Microsoft's copyrighted product must agree to contracts that ended on a given date. Is there any doubt that writers of the Salop-Romaine perspective would declare the coordinated contracts to be especially inimical to competition? After all, during the period of the group contracts a prospective entrant would be excluded from access to the business of *all* of the contract parties. And because terms of all contracts would be concurrent, it would be difficult for a new entrant to break into the market—the newcomer could not sign up a few customers as a signal to others that they should consider switching when their contracts with Microsoft expired, so he would have to persuade a larger group to switch at once.⁴²

The Salop-Romaine approach would support arguments that staggered contract terms are bad *and* that coordinated contract terms are bad. Its protean quality makes every business action potentially a basis for liability. Some judgment must be made to screen the actions that will be deemed anti-competitive from those that will not. It appears that in Salop and Romaine's world, whether the action is or is not in fact the basis for liability will depend in the first instance on whether the decision-maker believes the defendant wrongly is keeping potential entrants out of a market in which the defendant has too much power or believes instead that the defendant is rightly competing aggressively against rival firms.⁴³

Economic analysis should help resolve those issues. Its purported benefit is its capacity to replace subjective judgments about such matters with relatively determinate answers. The contribution of economic analysis should not be dependent on a decision-maker's predisposition respecting the issues that are its critical inputs. Yet that is precisely where Salop

⁴² For similar arguments, see Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price*, 96 YALE L.J. 209, 223-30 (1986); Thomas G. Krattenmaker & Steven C. Salop, *Analyzing Anticompetitive Exclusion*, 56 ANTITRUST L.J. 71 (1987).

⁴³ Salop and Romaine would not make this the sole determinant of liability, as a firm engaged in conduct with anti-competitive effects could avoid liability under their test if its conduct were shown to generate greater benefits for consumers than harm. Salop & Romaine, at 659-65. We address their proposed legal standard later in this article, but we object at the outset to casting the net of possible anti-competitive effects as broadly as the Salop-Romaine approach.

and Romaine’s economic analysis would leave us. It opens the specter of a world in which a defendant could be found to be engaged in anti-competitive conduct by one court for insisting on contracts with a uniform termination date, then by another court for switching to contracts with staggered expiration dates, with both courts relying on the same analytical methodology.

The result suggested above is not peculiar to that example. The same problem surfaces in considering how Salop and Romaine would treat the “prepaid balances” issue.

Recall that the FTC-DOJ investigation considered complaints about Microsoft’s failure to credit a licensee with payments made in contemplation of shipments the licensee committed to but did not make. Assertedly, Microsoft’s failure routinely to credit OEMs for such payments, directly or in successor license agreements, was anti-competitive.⁴⁴ It seems likely that Salop and Romaine would concur. The refusal to rebate funds for software not shipped would give OEMs an incentive to ship all the Microsoft software they could under the license agreement, up to the full quantity covered by the agreement. A competing software firm presumably would be disadvantaged by this term. Payment to Microsoft for the full quantity covered by the license would be a sunk cost, so the marginal cost of shipping a Microsoft program already contracted for would be zero.⁴⁵ Other software, then, either would have to be offered at a similar price—which in all likelihood will not be remunerative for the other firm—or would have to enjoy such a marked advantage over Microsoft’s product as to be worth the added cost. Salop and Romaine deploy essentially the same argument in discussing the competition between Microsoft and Netscape, addressed further below.⁴⁶

The conclusion that *refusing* to rebate “prepaid balances” is anti-competitive, however, does not plainly exclude the prospect of finding that *granting* such rebates is *also* anti-competitive. After all, if prepaid balances were subject to rebate in future license agreements with Microsoft, that could be an inducement for OEMs to enter successor agreements with Microsoft rather than with competitors.⁴⁷ If, as Salop and Romaine urge, it is anti-competitive to have license agreements that expire at different

⁴⁴ See discussion in text and note *supra* at note 23.

⁴⁵ Of course, this is true only looking at the matter *ex post*, after the contract is signed. It does not reflect the OEMs’ calculation when considering the contract *ex ante*.

⁴⁶ Salop & Romaine, at 627-29, 638-39.

⁴⁷ This concern apparently influenced some FTC staff participating in the investigation of Microsoft. See notes 23 & 22 *supra*.

times (which has only the mildest possible effect on licensee incentives to continue using Microsoft's product), a rebate policy would seem clearly to fall within Salop and Romaine's definition of anti-competitive conduct. Indeed, that exact argument is being advanced at present in litigation against Microsoft.⁴⁸ Ironically, the plaintiff making that claim is the successor firm to a Microsoft competitor that urged the FTC and DOJ to find Microsoft's actual contracting practice unlawful.⁴⁹

If *both* refusing to grant rebates and granting them *could* be anti-competitive, how will the Salop-Romaine analysis sort things out? As with the timing of contract expiration, Salop and Romaine's approach provides ample ammunition for arguing that particular business practices are anti-competitive, but it does not provide a ready way to distinguish ordinary competitive practices from anti-competitive practices.

This point is seen again in another of Salop and Romaine's arguments. They report allegations that Microsoft misbehaved by offering ISPs and OEMs "favors, such as . . . low or zero prices" for its Web browser in exchange for ISPs' and OEMs' agreement to "favor Internet Explorer over Netscape."⁵⁰ They also recite the complaint that Microsoft gave "its browser to consumers for free."⁵¹ Salop and Romaine suggest that these activities are part of a predatory strategy by Microsoft against Netscape and other potential competitors.⁵²

Again, however, the Salop-Romaine analysis can be turned in the opposite direction. Discussing markets with network externalities, Salop and Romaine state that entrants must, in order to compete effectively, engage in costly activities that attract consumers and others who might be helpful in garnering consumers. Such activities include "selling . . . initially at a very low price or giving [the product] away to gain market share."⁵³ In other words, selling at a very low or zero price is *either* a predatory strategy *or* a competitive necessity.⁵⁴

⁴⁸ See Complaint, *Caldera, Inc. v. Microsoft Corp.*, 181 F.R.D. 506 (D. Utah 1998) (No. 96-CV-645-B).

⁴⁹ Caldera purchased Novell's DR-DOS assets in July 1996. Its litigation against Microsoft was filed on the day its purchase was completed. See *Caldera, Inc.*, "Software Developer Caldera Sues Microsoft for Antitrust Practices," Press Release, Jul. 24, 1996, available at <<http://www.calderathin.com/aboutcaldera/publicrelations/html/1996/dosuit.html>>.

⁵⁰ Salop & Romaine, at 623.

⁵¹ Salop & Romaine, at 623.

⁵² Salop & Romaine, at 624-45.

⁵³ Salop & Romaine, at 621-22.

⁵⁴ See MICHAEL CUSUMANO & DAVID YOFFIE, *COMPETING ON INTERNET TIME* 99 (Free Press 1998); Schmalensee *Direct*, *supra* note 36, at ¶¶ 248, 270-82.

Salop and Romaine indicate that low-price browser distribution was an essential competitive strategy for Netscape but was an anti-competitive effort to extend or preserve a monopoly for Microsoft.⁵⁵ Neither conclusion is clearly correct. When Microsoft began distributing Internet Explorer at low or zero prices, Netscape was the dominant provider of Web browsers, a product for which there are apparent network externalities. Indeed, Netscape enjoyed a share of browser use estimated to have been as high as 70 to 80 percent in 1996 and certainly above half, however measured.⁵⁶ Although Microsoft had determined that it would add Web browser functionality to its operating system before Netscape began marketing its Web browser, Netscape was the clear leader in this arena when Microsoft's Web browser became available to consumers with the release of Windows 95.⁵⁷

Why, then, is Microsoft cast as the firm that sold at low or zero cost to preserve monopoly (which it is asserted to have in what Salop and Romaine treat as a different product market from browsers)⁵⁸ and Netscape as the firm competing to break into a market? Why is the characterization not the other way around?

One answer might be that Microsoft's share of browser use (or of browser users or other measure of relative success) increased during the period considered by Salop and Romaine.⁵⁹ That, of course, is the likely

⁵⁵ We believe this is an accurate characterization of Salop and Romaine's argument. Salop and Romaine do not, however, analyze Microsoft's position carefully. They do not find that PC operating systems is the relevant antitrust market; they assume that it is, just as they assume that Microsoft has monopoly power, declaring that it "is not implausible that Microsoft has monopoly power in a market for operating systems." Salop & Romaine, at 620.

⁵⁶ Estimates of past browser share vary, but all estimates give Netscape the lead for a considerable time, certainly including all of 1995-97. If the current AOL browser (which is based on Internet Explorer) is included with Internet Explorer use, then Internet Explorer became the leading browser in 1998. If the AOL browser is classified as a separate browser, Netscape still would be the leading browser through 1998 and into 1999, with a share of overall use currently estimated at approximately 40 percent. Estimates of a browser share as high as 80 percent for Netscape in 1996, however, appear exaggerated, basing the figure on data that fail to count many users who accessed the Internet using a browser provided by AOL or other on-line services. See Schmalensee Direct, *supra* note 36, at Appendix D, ¶¶ 3, 44, 47-52.

⁵⁷ See Schmalensee Direct, *supra* note 36, at ¶¶ 207-14.

⁵⁸ Although Salop and Romaine treat browsers as a separate market from operating systems, they expressly abjure reliance on that, stating that "whether the browser is treated as part of the operating system or as a separate market is not crucial to our analysis." Salop & Romaine, at 620.

⁵⁹ See Schmalensee Direct, *supra* note 36, at ¶¶ 289-90.

outcome when one introduces a new product. Whatever the nature of the competition, the odds are that the new product—which starts without any share of the market—will gain market share and that competing products already on the market will lose market share. There simply is nothing inherently suspect about an increase in market share.⁶⁰

Perhaps that first answer is slightly off the mark, so that Salop and Romaine's position rests not on the simple fact of increasing market share but on the magnitude of the change. Certainly, there has been a significant increase in the use of Microsoft's Internet Explorer.⁶¹ Though its early generations of browser did not attract users in substantial numbers, use of Internet Explorer increased substantially after Microsoft introduced its third and fourth generations of Internet Explorer. The trade press credited these versions as vast improvements over Microsoft's earlier browsing technology, and consumers agreed, increasing Microsoft's use for browsing rapidly.⁶² But significant market success cannot be the test. Beyond its implausibility as an interpretation of antitrust law, such a standard would have extremely little overlap with public interest—it would, for example, give no place to differences between competing products, to product improvements, or to other sources of success in competitive markets.⁶³

A second answer could be that Salop and Romaine have misspecified the relevant market. In the on-going litigation with DOJ, Microsoft argues

⁶⁰ That is true regardless of the identity of the competitor(s) losing share to the new entrant, despite Salop and Romaine's focus on the fortunes of Netscape's browser. *See* Salop & Romaine, at 636-42. In the case of Internet Explorer, moreover, survey data suggest that its gain in relative share of browser use primarily came through success against competitors other than Netscape, and especially from consumers using Internet Explorer in preference to AOL's Booklink Web browser. Indeed, Dean Schmalensee's review of the survey data concluded that roughly 85-90 percent of the relative increase in Internet Explorer's use between the fall of 1996 and early 1998 resulted from consumers choosing Internet Explorer over those *other* browsers and less than 15 percent from a relative decline in use of Netscape. *See* Schmalensee Direct, *supra* note 36, at ¶¶ 289-90.

⁶¹ That much is not disputed, though the sides in the DOJ-Microsoft case debate how much of the increase for Internet Explorer came at Netscape's expense. *See* note 60, *supra*.

⁶² *See* STANLEY J. LIEBOWITZ & STEPHEN MARGOLIES, TECHNOLOGY, INNOVATION & COMPETITION: FROM BETA TO MICROSOFT ch. 8 (Independent Inst. 1999) (forthcoming).

⁶³ Many of these factors, however, also are targeted by Salop and Romaine as possible antitrust violations. Product improvement, such as through improved integration of desirable features, can be exclusionary conduct under the Salop-Romaine analysis. Although they would offset consumer benefits from such conduct (at least *some* consumer benefits), they are unwilling to exempt from antitrust penalties conduct that enhances consumer enjoyment of a product, improves its operation, or creates other forms of efficiency. *See* Salop & Romaine, at 643-45.

that the relevant arena for understanding these activities is the competition among *platforms* that contain APIs for which other software will be written, whether those platforms are operating systems or Web browsers or other software embodying a particular set of programming standards.⁶⁴ Applications software (like word processors, spreadsheets, games, and so forth) typically is written for a specific software *platform*. A software platform exposes APIs that other software products can call upon to obtain services (to “turn on” particular functions that are contained in or controlled by other software). An operating system is usually a platform, but other products (for example, Netscape’s Web browser and JVM) can also act as a platform. A focus on platforms plainly would encompass Microsoft’s competition with Netscape and with Sun Microsystems.⁶⁵ If the arena in which competition is occurring is the market for *platforms* rather than for a particular type of software, then Microsoft, not Netscape, was the heavyweight when they began competing for customers.

Salop and Romaine, however, along with DOJ’s experts in its litigation with Microsoft, resist this market definition. Doubtless, that definition would make it quite difficult to cast Microsoft as a monopolist rather than a competitor, as there are many, significant actual or potential competitors in the platform market. That, of course, is its appeal to Microsoft. Whether that is in fact the correct market definition is beside the present point. Our observation simply is that acceptance of the platform market definition offers one possible source of coherence to the choice Salop and Romaine have made to cast Microsoft as the predator and Netscape as the prey, not the other way around.

A third possible solution to the problem with Salop and Romaine’s analysis looks to the intent of the parties. This approach is forcefully pressed by the chief economic expert in the government’s case against Microsoft, who makes corporate purpose the touchstone of his argument.⁶⁶

⁶⁴ Dean Schmalensee has taken the position, earlier advanced by Professor Fisher, that market definition is as apt to be misleading as instructive in many cases. See *United States v. Microsoft Corp.*, Civil Action No. 98-1232 (D. D.C.) & *State of New York ex rel. Dennis C. Vacco, et al. v. Microsoft Corp.*, Civil Action No. 98-1233 (D. D.C.), cross-examination testimony of Richard L. Schmalensee, Jan. 13, 1999, p.m. sess., trans. at 25-26. For that reason, he has spoken of a “competitive arena” rather than a “market” for platforms. We do not believe that there is any important difference in this terminology and will use the terms interchangeably.

⁶⁵ See discussion *supra* note 30.

⁶⁶ See *United States v. Microsoft Corp.*, Civil Action No. 98-1232 (D. D.C.) & *State of New York ex rel. Dennis C. Vacco, et al. v. Microsoft Corp.*, Civil Action No. 98-1233 (D. D.C.), cross-examination testimony of Franklin M. Fisher, Jun. 3, 1999, a.m. sess., trans.

Professor Frank Fisher asserts that one can look at what company officials say in context with the structure of the market in which they operate and figure out whether particular actions are motivated simply by a desire to compete or by an interest in undermining competition.⁶⁷

Perhaps, as Professor Fisher suggests, it is easier to divine an anti-competitive purpose than it is to discern which *possibly* anti-competitive effects truly are inimical to competition. We should not, however, jump to that conclusion. Group purpose is notoriously difficult to construct under the best of circumstances, given the array of different maximands that motivate individuals.⁶⁸ And the materials from which a corporation's "intent" can be ascertained are particularly difficult to parse. Various individual employees and officers routinely will discuss matters of importance to their personal vision for the firm with an eye to a particular goal and a particular audience. Even statements from a firm's CEO often are unreliable indicia of an overall corporate intent. That is why, prior to his involvement in the Microsoft case, Frank Fisher was so adamantly opposed to placing any weight on evidence of intent:

The subjective intent of a company is difficult to determine and will usually reflect nothing more than a determination to win all possible business from rivals—a determination consistent with competition ... To premise their legality on an inquiry into the specific motivations of subjective intent of the firms that engage in such conduct (when it is clear that all firms engaged in competition attempt and intend to win as much business as they can) or on retrospective evaluation of whether there were more "desirable" alternative actions that could have been chosen, would be to elevate competitors above competition and threaten the entire competitive process

at 33-34 [hereinafter, Fisher Cross].

⁶⁷ See *United States v. Microsoft Corp.*, Civil Action No. 98-1232 (D. D.C.) & *State of New York ex rel. Dennis C. Vacco, et al. v. Microsoft Corp.*, Civil Action No. 98-1233 (D. D.C.), testimony of Franklin M. Fisher, Jan. 5, 1999, ¶¶ 124-26 [hereinafter, Fisher Direct].

⁶⁸ See, e.g., KENNETH J. ARROW, *SOCIAL CHOICE AND INDIVIDUAL VALUE* (rev. ed., John Wiley 1963); ALLAN FELDMAN, *WELFARE ECONOMICS AND SOCIAL CHOICE THEORY* 186-94 (Nijhoff 1980); Frank H. Easterbrook, *Ways of Criticizing the Court*, 95 HARV. L. REV. 802 (1982); Eugene F. Fama & Michael C. Jensen, *Separation of Ownership and Control*, 26 J.L. & ECON. 301 (1983); Kenneth Shepsle, *Congress is a They, Not an It: Legislative Intent as Oxymoron*, 12 INT'L REV. L. & ECON. 239 (1991).

for the sake of those who are not intended to be its beneficiaries and at the expense of those who are.⁶⁹

We believe that Professor Fisher was right then, not now.

Salop and Romaine do not make a similar error to the Professor Fisher of today. They would allow some scope for corporate intent, saying that it “throws light on the likely effect of the conduct” being examined.⁷⁰ That observation, however, comes only as a footnote to their declaration that “a strong case can be made . . . that antitrust should dispense with the separate intent requirement and focus solely on the effects of the alleged anticompetitive conduct.”⁷¹

As explained below, in practice there *is* no separate intent requirement for corporations. The law has tended to look to firms’ actions and take as a given that actions with a credible efficiency explanation are sufficiently within the ordinary course of business activity no matter what employees of the firm thought or said.⁷² We think this a wise course, but it does not, then, provide an escape from the dilemma presented by the Salop-Romaine approach.

The road that Salop and Romaine lay out could be a perilous one for any number of businesses to travel. It places a premium on knowing how to tell the monopolists from the competitors, but it provides no ready mechanism for figuring out *ex ante* where the dividing line lies. After looking at the various alternatives, we can find no analytical structure in Salop and Romaine that answers the question. Perhaps only the thermos knows.

Economic Analysis: Another View

We should be clear that our quarrel is not, by and large, with the substance of Salop and Romaine’s speculations about what effects *might* flow from particular conduct. They rightly observe that in markets with significant network effects, a variety of actions might construct impediments to successful competition by rivals to the firm with the largest market share. Salop and Romaine also, in the main, identify plausible effects of each type of action asserted in complaints against Microsoft. As observed earlier, much of the recent writing in economics has provided insight into the ways in which activity that could be seen as

⁶⁹ See FISHER, MCGOWAN & GREENWOOD, *supra* note 1, at 272.

⁷⁰ Salop & Romaine, at 660 n.121.

⁷¹ Salop & Romaine, at 660.

⁷² See discussion *infra*, text at notes 135-144.

ordinary competitive conduct also plausibly could impede rivals' competition with a dominant firm.⁷³

The problem comes in trying to apply that insight. If the analysis stops at the academic exercise of observing the potential impact on rivals, it is interesting but essentially disconnected from important applications. If, however, the analysis becomes the predicate for imposing substantial penalties, it is problematic. To be useful to decision-makers, economic analysis must do more than establish *possibilities*. It must establish at least to some order of magnitude the *probability* that activity that could be either standard competitive conduct or conduct that utterly subverts market competition falls on one or the other side of that line. This is the minimum goal for economic analysis of antitrust issues—issues that ultimately are resolved in court where proof, not speculation, is required. As is typical of writings in the nip-and-tuck school, Professor Salop and Dr. Romaine have not met this goal.

Consider, for example, their discussion of predatory threats. An impressive array of articles in the top academic journals over more than two decades discuss predation and predatory threats.⁷⁴ Many well-known law-and-economics scholars have ventured onto this terrain. Salop and Romaine draw on some of the more sophisticated entries in that literature, but their analysis gives the reader only *coulds* and *maybes* and *mights*:

[P]redatory threats *might* be credible, even though following through on the threats would inflict a cost on the monopolist. . . . [I]f carrying out the threatened conduct drives the rival to exit the market, the monopolist *could* recoup by preserving its monopoly profits. Second, it *may be* profitable for the monopolist to gain a reputation as a predator. That reputation *may*

⁷³ See authorities cited at note 18, *supra*.

⁷⁴ See, e.g., Areeda & Turner, *supra* note 17; Joseph F. Brodley & George Hay, *Predatory Pricing: Competing Economic Theories and the Evolution of Legal Standards*, 66 CORNELL L. REV. 738 (1981); Avinash Dixit, *Entry and Exit Decisions Under Uncertainty*, 97 J. POL. ECON. 620, 620-38 (1989); Easterbrook, *supra* note 17; Paul Joskow & Alvin Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L.J. 213 (1979); McGee, *supra* note 17; Paul Milgrom & John Roberts, *Predation, Reputation, and Entry Deterrence*, 27 J. ECON. THEORY 280 (1982); Paul Milgrom & John Roberts, *Limit Pricing and Entry Under Incomplete Information: An Equilibrium Analysis*, 50 ECONOMETRICA 443 (1982); Janusz Ordover & Garth Saloner, *Predation, Monopolization, and Antitrust*, in THE HANDBOOK OF INDUSTRIAL ORGANIZATION vol. 1, at 537-96 (Richard Schmalensee & Robert D. Willig eds., North-Holland 1989); Garth Saloner, *Predation, Mergers, and Incomplete Information*, 18 RAND J. ECON. 165 (1987).

lead future victims to fear the monopolist's threats. Third, the monopolist sometimes *may be* able to make a binding commitment to carry out a threat that otherwise would not be credible.⁷⁵

That all translates into a speculation that if a monopolist can drive all its rivals from the market and can keep them and others from the market over the long term, there is a possibility that the monopolist could make enough money to recover what was lost during a period of predatory pricing; and if that is true, the monopolist may get its rivals' attention with a mere threat. But when are we apt to find a monopolist who can do that?

Salop and Romaine come closer to completing the analysts' task when discussing Microsoft directly. They opine that, as Microsoft has "far 'deeper pockets' than [most of its potential competitors, it] can outlast [them] in a war of attrition and so a threat to continue to do so is credible."⁷⁶ Establishing a credible predatory threat is an essential step for their analysis, and they recognize one factor that enhances credibility.

Regrettably, they do not pursue this analysis. The *capacity* to outlast a rival is only one requisite of a credible story of predation or of a credible predatory threat. The essential question is why it is in a firm's interest to commit the predatory act. In a nuclear arms "game," my having more missiles than you bolsters your conviction that I could win if we go to war; but what evidence is there that war makes sense for me even if I can win? The doctrine of mutually assured destruction, which dominated thinking about such matters for many years, was predicated on the theory that no one would care about "winning" a nuclear war if the devastation visited on both combatants—"winner" as well as loser—was sufficiently high.⁷⁷ Predatory pricing potentially encounters the same problem.

Salop and Romaine nod in this general direction, but they do not then explain their contrary conclusion, that Microsoft is a plausible predatory pricer. They recognize that a firm with a large volume of business (which is apt to include any business with a large market share) has a lot to lose in a war of attrition, and the market leader typically stands to lose a great

⁷⁵ Salop & Romaine, at 641 [emphasis added].

⁷⁶ Salop & Romaine, at 642.

⁷⁷ See, e.g., THOMAS C. SCHELLING, THE STRATEGY OF CONFLICT 119-61, 230-54 (Harvard Univ. Press 1960). Our point here is not that mutually assured destruction was the best strategy, only that it raises a critical analytical issue.

deal more than most rivals.⁷⁸ The utility of a predatory threat depends on the firm's ability to maintain a closed market long enough after ousting its rivals to recoup the losses incurred during the predatory activity.⁷⁹ Salop and Romaine do not produce substantial basis for belief that Microsoft could drive rivals away and then keep competitors out long enough and raise prices high enough to make up for the losses. Salop and Romaine provide no calculations of the sort of losses that would be likely, of the elasticity of demand for Microsoft's products (indeed, they do not specify which Microsoft product they have in mind), or of other factors necessary to resolve this issue.

The DOJ, on the other hand, if it is to succeed in its litigation against Microsoft, must provide just the sort of information missing from Salop and Romaine's article. One might view the article and the DOJ evidence as theory and practice in this area. It is not a practice that should make the theorists comfortable. Indeed, the practice looks just as theoretical and perhaps even more open-ended than the theory propounded in the Salop-Romaine article.

The testimony, presented primarily by the government's chief economic expert witness, Frank Fisher, states that Microsoft has engaged in predation by integrating its browser with Windows, a move Professor Fisher concludes cost Microsoft millions of dollars.⁸⁰ Fisher asserts that Microsoft could have sold the browser for a substantial amount of money and its failure to do that can only be explained as a conscious decision to hurt itself in order to inflict greater harm on its potential competitors.⁸¹ Having adopted the DOJ market definition—Intel-compatible-PC operating systems—Professor Fisher identifies browsers as complements to the product that the DOJ's case concerns.⁸² Microsoft's alleged predation in

⁷⁸ Salop & Romaine, at 641. *See also* Easterbrook, *Predatory Strategies*, *supra* note 17.

⁷⁹ In noting as a possible explanation for predatory pricing the predator's interest in gaining a reputation as a predator, Salop and Romaine might intend to offer an explanation divorced from the predator's expectation of recoupment. Although the concept is controversial, Judge Posner has explained why a strategy of predation without recoupment is plausible in peculiar circumstances. *See* POSNER, *supra* note 14, at 185-86. The Microsoft example, however, does not come close to the circumstances Judge Posner describes. Microsoft competes in markets that are not nearly so closed to competition as would be necessary to make a plausible case for predation for reputation's sake alone.

⁸⁰ Fisher Direct, *supra* note 67, at ¶ 122.

⁸¹ *Id.* at ¶¶ 123-24.

⁸² *See* United States v. Microsoft Corp., Civil Action No. 98-1232 (D. D.C.) & State of New York *ex rel.* Dennis C. Vacco, et al. v. Microsoft Corp., Civil Action No. 98-1233 (D. D.C.), redirect testimony of Franklin M. Fisher, Jan. 12, 1999, a.m. sess., trans. at 38

browsers is problematic in that view because it sustains a monopoly in operating systems.

Making Web browsers a product market separate from operating systems is critical to the predation claim, but recognizing them as complements creates difficulties. The importance of separating the products should be obvious: it allows a simple focus on the price charged for browsers. Given that Microsoft makes Internet Explorer available in some venues at virtually a zero price, the pricing-below-cost aspect of predation becomes far easier to establish. Yet, observing that browsers are complements to operating systems complicates the Government's argument. If the operating system and Web browsing technology are complements, providing such technology at a very low or even a zero price could very well be highly remunerative.⁸³

That is exactly what Microsoft's economic expert, Dean Richard Schmalensee, says has occurred. Dean Schmalensee explains that Internet Explorer's contribution to the utility of Windows increases both the price that consumers will pay for Windows and the volume of sales. Slight increases in either—increases in the one to three percent range—more than pay for Microsoft's investment in Internet Explorer.⁸⁴ Integration of Internet Explorer into Windows to offer additional, attractive functions follows the same approach as Microsoft's integration of numerous other software technologies into Windows, making it more evident that the strategy Microsoft follows is a remunerative and not a predatory strategy.⁸⁵ Simply put, the firm makes money not by selling every possible stand-alone product separately but by integrating the most attractive

[hereinafter, Fisher Redirect].

⁸³ This could be true even if the browser were distributed at a "negative" price. *See* note 31, *supra*.

⁸⁴ Schmalensee Direct, *supra* note 36, at ¶¶ 556, 563; *United States v. Microsoft Corp.*, Civil Action No. 98-1232 (D. D.C.) & *State of New York ex rel. Dennis C. Vacco, et al. v. Microsoft Corp.*, Civil Action No. 98-1233 (D. D.C.), direct examination testimony of Richard L. Schmalensee, Jun. 21, 1999, p.m. sess., trans. at 56-60, & Defense Exhibit 2763.

⁸⁵ Schmalensee Direct, *supra* note 36, at ¶¶ 577-62. Microsoft's construction of Internet Explorer as part of its operating system is consistent not only with past behavior by Microsoft but also with industry norms. Nearly all (perhaps all) commercially available desktop operating systems incorporate browsing functions, including Apple's MacOS, IBM's OS/2, Sun's Solaris, Be's BeOS, and the Caldera and Red Hat versions of the Linux operating system. At least one firm, IBM, integrated browsing functions with its operating system prior to Microsoft's release of Windows 95. *See id.* at Table 5. And all of these firms integrated browsing functions without separate charges.

complementary features into the operating system and encouraging consumers to become familiar with those features.

Professor Fisher agrees that Microsoft is making money on the sale of Windows and that the revenue from Windows more than pays for its costs of developing technologies incorporated in each new version. Given his recognition that Internet Explorer and Windows are at least complements, even if he would define them as separate products, this would seem to end the predation claim.

But Professor Fisher offers a new twist to the predation argument. He declares that, even if it covers all of its Internet Explorer-related costs, Microsoft is making *less money than it might have made* had it priced and marketed Internet Explorer differently.⁸⁶

Although Fisher casts this as a calculation of “below opportunity-cost pricing” which he says is what the usual below-cost-pricing calculation really means,⁸⁷ this is a novel approach to predation. The standard approach asks whether pricing is below a firm’s marginal costs.⁸⁸ That leaves open questions respecting the appropriate measures of cost and the apposite time frames for computing below-cost pricing, matters of importance in lines of business that have substantial economies of scale and that are not yet mature products.⁸⁹ Professor Fisher’s test, however, asks instead what the *theoretical profit-maximizing price* is for a given product and commands that the firm *must* charge that price in order not to engage in predation. This test requires a very different set of inquiries and implies far greater knowledge by the decision-maker—with respect to matters such as the nature of the demand curve faced by the individual

⁸⁶ United States v. Microsoft Corp., Civil Action No. 98-1232 (D. D.C.) & State of New York *ex rel.* Dennis C. Vacco, et al. v. Microsoft Corp., Civil Action No. 98-1233 (D. D.C.), direct examination testimony of Franklin M. Fisher, Jun. 1, 1999, a.m. sess., trans. at 70.

⁸⁷ *Id.* at 38-39.

⁸⁸ See, e.g., POSNER, *supra* note 14, at 189 (pricing below short-run marginal cost is predatory; pricing below long-run marginal cost is predatory only if coupled with anticompetitive intent); Areeda & Turner, *supra* note 17.

⁸⁹ In the case of an industry in which there are substantial scale economies, short-run marginal cost is greater than long-run marginal cost for levels of output below the long-run minimum-cost scale. A firm that takes a long term view has an incentive in this setting to set its price below short-run marginal cost. With respect to “immature” products or industries, predatory pricing doctrine has recognized the difficulties in this area by creating exceptions for firms that use promotional discounts in order to establish themselves in a competitive market. See, e.g., A.A. Poultry Farms, Inc. v. Rose Acre Farms, Inc., 881 F.2d 1396, 1400 (7th Cir. 1989) (on promotional discounts, *citing* Buffalo Courier-Express, Inc. v. Buffalo Evening News, Inc., 601 F.2d 48 (2d. Cir. 1979)).

firm—than the standard legal test.⁹⁰ It is a test that leaves virtually every business open to charges of predatory pricing, as no one will be able with reasonable certainty to anticipate *ex post* calculations of the best price for each product.⁹¹

Far from providing the sort of detailed calculations missing from Salop and Romaine—of factors necessary to decide whether Microsoft reasonably could be expected to engage in predation given the losses it would incur and its prospects for preventing competitive entry—Fisher’s approach elides any precise calculation at all.⁹² To circumscribe the set of candidates for predatory pricing claims, Fisher relies once again on his assessment of Microsoft’s intent together with an assumption that defeating competition is especially valuable—and, hence, illicit efforts to that end are especially likely—in a market with strong network effects.⁹³ We have already discussed the problem with reliance on intent in this context.⁹⁴ And the network effects argument brings back to the initial question of DOJ’s market definition, as the market with strong network effects must be the *platform* market. Using that market definition makes the predatory pricing claim difficult, as explained earlier. Moreover, invocation of network effects does little to buttress the contention that a firm has engaged (or is likely to) in predatory behavior. As we explain later, we certainly find vigorous competition in the platform market plausible, but that in no way establishes that the competition is different than in other

⁹⁰ Professor Fisher himself had difficulty answering questions that are critical to this inquiry, and he declined to offer an opinion on a key variable in making this calculation (price elasticity of demand). Notably, the colloquy on this issue occurred in a context that should make the calculation much more straightforward than typically would be the case, as Fisher was asked only to find the theoretical short-run profit-maximizing price for Windows on the assumption that Microsoft enjoyed a monopoly in the market defined by the Government. See Fisher Cross, *supra* note 66, at 40-42. For this purpose, a monopolist can be assumed to face the industry demand curve, avoiding a need for firm-specific demand information.

⁹¹ Indeed, several empirical studies of pricing find that managers typically use cost-based rules of thumb largely as a way of coping with uncertainties in the estimation of demand, see FREDERICK M. SCHERER & DAVID ROSS, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 262 (Houghton-Mifflin Co., 3d ed. 1990) (reviewing empirical studies of price setting). Presumably firms use rules of thumb because it is too costly to obtain accurate estimates of the demand functions for their products before setting price.

⁹² See Fisher Cross, *supra* note 66, at 13. See also Joseph Nocera, *The Big Blue Diaries*, *FORTUNE*, Jul. 5, 1999, at 132, 134 (“[Professor Fisher’s] testimony is almost entirely lacking in hard figures”).

⁹³ Fisher Redirect, *supra* note 82, at 21-22.

⁹⁴ See discussion *supra* text at notes 66-72.

markets—it is not necessarily more or less vigorous or more or less licit than competition in other markets.⁹⁵

In the end, DOJ and Professor Fisher have failed to reduce concern that the Salop and Romaine approach is merely an open door to claims of anti-competitive conduct. They have not provided credible evidence that Microsoft has engaged in predatory pricing much less that market conditions are consistent with a reasonable expectation that Microsoft will recoup its current losses with future earnings.⁹⁶ Rather, the DOJ and Fisher see evidence of intent and presence of network externalities as persuasive that the facts of the case must fit a pattern of illicit behavior. That approach replaces hard analysis of actual and probable effects with surmise based on fragmentary evidence and assumption. And the problems created by this approach become more pronounced if such analysis is combined with the legal standard proposed by Salop and Romaine. We turn to consideration of their suggested legal standard next.

III. LEGAL STANDARDS

Salop and Romaine on the Legal Standard under Section 2

Salop and Romaine tell readers that the legal standard used to judge violations of Section 1 of the Sherman Act is a well settled balancing test that weighs the harm to consumer welfare of anti-competitive conduct against the benefits to consumer welfare (for example, from efficiency gains).⁹⁷ Their crisp discussion of this standard contrasts sharply with their exploration of the monopolization standard under Section 2. They title the section on the monopolization test “Section 2’s Unsettled Standard,”⁹⁸ and their discussion reinforces the sense that title conveys.

⁹⁵ See text *infra* at notes 145-154.

⁹⁶ The argument in fact is not that Microsoft will recoup losses on Internet Explorer through higher future charges, but that losses on Internet Explorer allow Microsoft to continue to charge a monopoly price for Windows today. *United States v. Microsoft Corp.*, Civil Action No. 98-1232 (D. D.C.) & *State of New York ex rel. Dennis C. Vacco, et al. v. Microsoft Corp.*, Civil Action No. 98-1233 (D. D.C.), cross examination testimony of Franklin M. Fisher, Jan. 7, 1999, a.m. sess., trans. at 13-15, direct examination testimony of Franklin M. Fisher, Jun. 2, 1999, a.m. sess., trans. at 27. We know of no case that adopts such a quasi-predation, quasi-tying approach to predatory pricing. Indeed, the concept of “recoupment” is an odd fit with other testimony of Professor Fisher about the price at which Microsoft sells its Windows operating system. See Fisher Cross, *supra* note 66, at 30-43, 53-54.

⁹⁷ Salop & Romaine, at 647-48.

⁹⁸ Salop & Romaine, at 649.

Actually, the problem is not strictly identifying the abstract standard. The recognized test for Section 2 cases is the *Grinnell* test, which requires possession of monopoly power and “willful acquisition of that power as distinguished from growth or development as a consequence of superior product, business acumen or historic accident”.⁹⁹ Salop and Romaine accept that as the governing test, but they indicate that the meaning of this test is uncertain. The reason, they suggest, is the ambiguity of the *willful acquisition* component of *Grinnell*.

Salop and Romaine identify three “views” of the willful acquisition prong of *Grinnell*: the avoidable exclusionary conduct test, the sole purpose and effect test, and the unnecessarily restrictive conduct test.¹⁰⁰ They argue that two views—we will refer to them as alternative tests—are defective, while the third is not.

As Salop and Romaine cast these tests, the *avoidable exclusionary conduct* test holds the monopolist liable whenever he creates barriers to competition (that the monopolist “has the ability to forego”), whether or not there are efficiencies associated with the monopolist’s conduct.¹⁰¹ The *sole purpose* test holds the monopolist liable only when the creation of competition barriers is apparently the sole purpose of his conduct. One version of this is a “but for” test, which asks whether the monopolist’s conduct would have been unprofitable in the absence of competition barriers imposed by the monopolist.¹⁰² The *unnecessarily restrictive conduct* test holds the monopolist liable when the exclusionary effects of his conduct outweigh the associated consumer benefits.

Salop and Romaine state that all three of these tests have been applied by courts at various times. The avoidable conduct test was first articulated and applied by Judge Learned Hand in the celebrated *Alcoa* decision.¹⁰³ The primary purpose test was applied, according to Salop and Romaine, in the Supreme Court’s *Aspen Ski* decision.¹⁰⁴ Salop and Romaine note that the sole purpose test, rejected by Judge Hand in *Alcoa*, “has been used by

⁹⁹ United States v. Grinnell Corp., 384 U.S. 563, 570-71 (1966).

¹⁰⁰ Salop & Romaine, at 649.

¹⁰¹ Salop & Romaine, at 649-50.

¹⁰² Salop & Romaine, at 650. Salop and Romaine credit Professors Ordover and Willig for this test. See Janusz A. Ordover & Robert D. Willig, *Access Bundling in High-Technology Markets*, in COMPETITION, INNOVATION AND THE MICROSOFT MONOPOLY: ANTITRUST IN THE DIGITAL MARKETPLACE (Jeffrey A. Eisenach & Thomas M. Lenard eds., Kluwer 1999).

¹⁰³ United States v. Aluminum Co. of America, 148 F.2d 416 (2d Cir. 1945).

¹⁰⁴ Salop & Romaine, at 650 [referring to *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985)].

some courts.”¹⁰⁵ The one example they provide of an application of the sole purpose test is the recent *United States v. Microsoft* decision in the United States Court of Appeals for the D.C. Circuit,¹⁰⁶ a decision they plainly wish to distance from the test to be used in the current litigation.

Having found all three tests within the legal landscape, Salop and Romaine concentrate on a normative discussion of the appropriate legal standard. After all, the “unsettled” state of the law fairly cries out for a normative answer; one can imagine judges pleading for someone to tell them which of the three tests is best.

Salop and Romaine’s normative position is based on a straightforward “error-cost” argument. The avoidable exclusionary conduct test of Judge Hand is inappropriate, they argue, because it generates a high rate of “false convictions”, i.e., convictions in cases where the defendant’s conduct led to a net increase in consumer welfare. The sole purpose test is inappropriate in their view because it generates a high rate of false acquittals—i.e., acquittals in cases where the defendant’s conduct on net reduced consumer welfare. The unnecessarily restrictive conduct test is best in their view because it is capable of being applied in a manner that minimizes the total cost of error by trading off increases in one type of error for declines in the other type. In other words, Salop and Romaine’s normative goal is maximizing consumer welfare, and they view the Goldilocks (“just right”) solution to be a test that, like the Section 1 test, essentially balances expected consumer harm against expected consumer benefit.¹⁰⁷

¹⁰⁵ Salop & Romaine, at 650.

¹⁰⁶ *United States v. Microsoft Corp.*, 147 F.3d 935 (D.C. Cir. 1998).

¹⁰⁷ As a concrete example of the type of case for which the unnecessarily restrictive conduct test is appropriate, Salop and Romaine offer the following hypothetical. “[S]uppose the efficiency benefit involves improved performance of the product. Suppose that it were known that the improved product performance has a value to users of \$5. To make the example extreme in order to illustrate the differences among alternative antitrust approaches, suppose further that the higher barriers to competition [resulting from the product improvement] were known to allow the monopolist to charge an additional \$50.” Salop & Romaine, at 646. This example immediately raises questions that Salop and Romaine never address. For example, if a firm improves its product in a way that adds \$5 to consumer benefits, and then raises the product price by \$50, why wouldn’t consumers simply stay with the old version of the product, given that the old version gives them a greater consumer surplus (specifically \$45 more surplus)? Is it reasonable to assume that consumers are so closely tied to the dominant firm’s product that they will switch to the new version under these conditions? If the dominant firm behaves in this manner, why wouldn’t a competitor offer a substitute product that gives consumers more surplus?

What's Wrong with the Salop and Romaine View

We think Salop and Romaine's positive claim regarding the standard under Section 2 is incorrect in most important respects, and their normative claim is simply misguided. Salop and Romaine's positive analysis of the Section 2 legal standard presents the law as a quite a bit more ambiguous and up-for-grabs than it really is.

As Oliver Wendell Holmes noted long ago, the law for most purposes is a prediction of what a court is likely to do.¹⁰⁸ The lawyer's craft is making that prediction accurately. That applies to antitrust, as to other areas of the law: antitrust lawyers and scholars sift through the legal authorities (which in antitrust overwhelmingly consist of case law) in order to predict how antitrust courts will treat a certain claim.

Salop and Romaine's analysis, however, does not attempt to provide a prediction of how courts today, and especially the courts that will address the Microsoft litigation, will apply the current legal standard. Salop and Romaine instead divide the authorities into three disparate tests, but they do not tell us which one is most likely to be applied by a court in a monopolization case. For positive analysis, that is the question that counts.

Positive Analysis of the Legal Standard

It also is a question that most antitrust lawyers could answer, for the field is not so muddled as Salop and Romaine suggest. Of the three tests defined by Salop and Romaine, the sole purpose test (or the "but for" version of it) is the best description of the current legal standard under Section 2. The most important line of recent Supreme Court and appellate decisions articulating the standard under Section 2 is composed of predatory pricing cases. Among those cases are the Supreme Court's decisions in *Matsushita*¹⁰⁹ and *Brooke Group*,¹¹⁰ the First Circuit's decision in *Barry Wright*,¹¹¹ and the Seventh Circuit's decision in *Rose-Acre Farms*.¹¹² These decisions have in common a clearly-expressed view that the costs of false convictions are especially worrisome. The recoupment test set forth in *Matsushita* and further developed in *Brooke Group* is properly viewed as the version of the sole purpose test Salop and Romaine

¹⁰⁸ See Oliver Wendell Holmes, Jr., *The Path of the Law*, 10 HARV. L. REV. 457, 461 (1897).

¹⁰⁹ *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574 (1986).

¹¹⁰ *Brooke Group v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993).

¹¹¹ *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227 (1st Cir. 1983).

¹¹² *A.A. Poultry Farms v. Rose Acre Farms*, 881 F.2d 1396 (7th Cir. 1989).

were most at pains to dismiss. The recoupment test asks whether the defendant's price-cutting would have been unprofitable in the absence of barriers to competition. This is essentially the "but for" test that Salop and Romaine identify as a special case of the sole purpose inquiry.¹¹³

Although Salop and Romaine cite *Aspen Ski* as an application of their preferred unnecessarily-restrictive standard, this is a poor example in two respects. First, as a predictor of the tests that will be used in the future, *Aspen Ski* is a poor choice because it has not enjoyed widespread acceptance as a good decision. Indeed, it has been roundly criticized, and appellate courts have treated the *Aspen Ski* doctrine as limited to the facts of that case.¹¹⁴

Second, and more important, the *Aspen Ski* case is weak evidence even for the modest proposition that antitrust courts have applied the unnecessarily restrictive test *to any case*. The defendant in *Aspen Ski* failed to provide a credible consumer-benefit or efficiency justification for its decision to withdraw from a joint-marketing arrangement with its weaker competitor. The Supreme Court upheld the jury's determination in *Aspen Ski* largely because the defendant failed to introduce any evidence to counter the plaintiff's claim that the defendant's motivations were purely anti-competitive. That is, the Supreme Court upheld the finding of a Section 2 violation in *Aspen Ski* not because it thought that the defendant's efficiency justifications were *outweighed* by anti-competitive harms, as Salop and Romaine would have us believe, but because the defendant *failed to set forth any efficiency justification whatsoever*.

Even if that hurdle is passed—if someone can find a case in which a court legitimately can be said to have adopted the unnecessarily restrictive test—this test has not been applied in Section 2 cases with sufficient frequency to be treated as an accepted legal doctrine. Antitrust courts holding defendants liable for anti-competitive exclusion generally have not reached this result through balancing pro-competitive benefits against anti-competitive harms. They have reached this result when, and pretty much *only* when, the defendant has failed to provide a credible efficiency justification.

¹¹³ Salop & Romaine, at 650.

¹¹⁴ *See, e.g.,* Olympia Equipment Leasing Co. v. Western Union Telegraph Co., 797 F.2d 370, 379 (7th Cir. 1986) ("If [*Aspen Ski*] stands for any principle that goes beyond its unusual facts, it is that a monopolist may be guilty of monopolization if it refuses to cooperate with a competitor in circumstances where some cooperation is indispensable to effective competition.").

The much-discussed case of *Lorain Journal Co. v. United States*¹¹⁵ is exemplary. The *Lorain Journal* newspaper had enjoyed a local monopoly in advertising and news dissemination. When a local radio station was licensed to begin broadcast operations and started signing up advertisers, the *Journal* refused to deal with firms that bought advertising time on the radio station. It presented advertisers a stark choice: him or me. The Court found a violation of Section 2 for attempted monopolization. The Court rejected the *Lorain Journal*'s argument that it had a right to deal with whomever it wished, and gave no credit to the defendant's justification that it was acting according to a larger implicit agreement to protect local businesses from competing firms located outside of Lorain. In the absence of any credible consumer-welfare justification, the Court inferred that the *Lorain Journal* had a specific intent to regain its monopoly in advertising. As in *Aspen Ski*, the Supreme Court upheld a lower court finding of monopolistic exclusion *not* because it thought that the anti-competitive harms outweighed the proffered consumer benefits, but because the defendant failed to provide any credible consumer-benefit justification.

Of the three tests identified by Salop and Romaine—avoidable exclusion, sole purpose, and unnecessarily restrictive—only two have been applied by antitrust courts under Section 2, the avoidable exclusion and the sole purpose tests. Salop and Romaine correctly cite *Alcoa* as the key application of the avoidable exclusion test. However, the avoidable exclusion test has been rejected by modern antitrust courts. For example, in *United States v. Syufy Enterprises*,¹¹⁶ Judge Kozinski had this to say about the *Alcoa* doctrine:

The government trots out a shopworn argument we had thought long abandoned: that efficient, aggressive competition is itself a structural barrier to entry ... [T]he wisdom of this notion has been questioned by just about everyone who has taken a close look at it. The antitrust laws protect competition, not competitors.¹¹⁷

¹¹⁵ *Lorain Journal Co. v. United States*, 342 U.S. 143 (1951).

¹¹⁶ *United States v. Syufy Enterprises*, 903 F.2d 659 (9th Cir. 1990).

¹¹⁷ *Id.* at 667.

This is a stronger and blunter statement of the point than typical, but its substantive content is nonetheless within the mainstream of antitrust law.¹¹⁸

Admittedly, American law provides ample anecdotes of courts heading in unexpected directions, and an unusually lucky antitrust plaintiff might find a judge who is willing to apply Salop and Romaine's *unnecessarily restrictive* test. But no one should bet his own money on that result—especially not when a defendant has substantial efficiency justifications on his side.

The present state of US antitrust law is fairly clear: only one test is generally applied under Section 2, and that is the *sole purpose* test. Salop and Romaine are simply wrong in suggesting that the legal standard under Section 2 is a lottery involving three potential tests, each equally likely to be chosen by a court. They should receive high marks for creativity in their discussion of the legal standard, but lawyers, law students, and bar applicants would be well advised to identify the sole purpose test as the standard actually applied to monopolization claims.

Normative Analysis of the Legal Standard

There are good reasons why courts have coalesced around the sole purpose test, and these reasons take us directly into Salop and Romaine's normative position regarding the proper legal standard under Section 2. Salop and Romaine claim that overall error costs are minimized by applying the unnecessarily restrictive conduct test. Antitrust courts have generally reached a different conclusion over the past 100 years of

¹¹⁸ See, e.g., *Olympia Equipment Leasing Co. v. Western Union Telegraph Co.*, 797 F.2d 370, 375 (7th Cir. 1986) (“Opinion about the offense of monopolization has undergone an evolution. Forty years ago it was thought that even a firm with a lawful monopoly . . . could not be allowed to defend its monopoly against would-be competitors by tactics otherwise legitimate; it had to exercise special restraint — perhaps, indeed, had to hold its prices high, to encourage new entry. So Alcoa was condemned as a monopolist because it had assiduously created enough productive capacity to supply all new increments of demand for aluminum . . . Later, as the emphasis of antitrust policy shifted from the protection of competition as a process of rivalry to the protection of competition as a means of promoting economic efficiency . . . it became recognized that the lawful monopolist should be free to compete like everyone else; otherwise the antitrust laws would be holding an umbrella over inefficient competitors”). See also ERNEST L. GELLHORN & WILLIAM E. KOVACIC, *ANTITRUST LAW AND ECONOMICS* 130 (West Pub. Co., 4th ed. 1994) (“In general, the path of Section 2 jurisprudence since *Alcoa* has led toward allowing dominant firms greater discretion to choose and implement competitive strategies, even if specific tactics vanquish individual rivals.”); E. THOMAS SULLIVAN & JEFFREY L. HARRISON, *UNDERSTANDING ANTITRUST AND ITS ECONOMIC IMPLICATIONS* 300 (Matthew Bender, 3d ed. 1998) (“Whether *Alcoa*, at least as far as the excess capacity issue is concerned, would be decided the same way today is open to serious question.”).

applying the Sherman Act. It would be a wonderful advertisement for economics—and a bit amazing—if two economists, thinking about the problem for a short time, were to discover a superior approach to deciding cases that courts had failed to discover on their own. Of course, nothing so amazing has happened; Salop and Romaine's analysis of error costs reaches the wrong conclusion. Salop and Romaine's argument also relies on rather speculative claims about the relative costs of false convictions and false acquittals to get there.

Let us start with the simple, basic-principles case for generally preferring the sole purpose test to the unnecessarily restrictive test on error-cost grounds. The sole purpose test certainly increases the likelihood of a false acquittal relative to the unnecessarily restrictive test. However, the cost of a false acquittal will be small whenever entry is easy. A firm that excludes a competitor in a market with easy entry will not be able to enjoy the fruits of its exclusionary efforts, and consequently consumers will not be harmed.

Salop and Romaine know that, and they emphasize instances in which entry is difficult. But that does not make their error-cost case. Of course, the difficulty of entry is a datum in the social cost calculation, but it is not determinate in assessing the long-run consequences of false positives versus false negatives in antitrust. So long as entry is feasible, even if difficult, consumers will not suffer harm in the long run as a result of exclusionary efforts by a dominant firm; for in the long run entry will occur and economic profits will be driven to zero. Whether consumers suffer harm at all and the extent of harm suffered will depend on whether and how long the dominant firm can exclude competition from entrants.

This is all Econ-101, but the point we want to stress here is that there is a market constraint on the cost of false acquittals. Monopoly profits attract entrants, and entry leads to an equilibrium in which consumer welfare is at a maximum. That is true even where entry is difficult. Even in those instances, monopoly profits will attract entry to the point at which expected revenues will just compensate each firm for the opportunity costs of all types of capital employed as well as for the cost of entry.¹¹⁹ An incumbent, dominant firm can prevent entry in this setting only by keeping its price sufficiently low that no potential competitor would find it profitable to invade its market. In that instance, consumer harm, if any, will be at a minimum.

¹¹⁹ See, e.g., WILLIAM J. BAUMOL, JOHN C. PANZAR & ROBERT D. WILLIG, *CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE* 201 (Harcourt, Brace, Jovanovich, rev. ed. 1988).

There is no such self-limiting quality to the effects of false convictions. These are more likely if Section 2 cases were decided under the unnecessarily restrictive test than under the sole purpose test. As many commentators and courts have noted,¹²⁰ false convictions can be costly. In particular, there are three types of cost associated with false-convictions.

First, false convictions encourage firms to avoid aggressive competition and to engage in implicitly or explicitly collusive conduct. For example, false convictions for predatory pricing punish firms for cutting their prices. As the probability of a false conviction for predatory pricing increases, firms increasingly will be advised by their lawyers to avoid price competition. Similarly, false convictions for competitive output decisions, such as the introduction of a new product (which, if successful, almost invariably raises rivals' costs), encourage firms to seek market and information sharing arrangements with their competitors. Such sharing arrangements can easily develop into implicit or explicit collusion.¹²¹

Second, false convictions encourage, and in effect teach, firms to seek compensation in the courts for actions by competitors that harm them. The higher the rate of false convictions the more pronounced this lesson. A regime in which false convictions occur frequently generates a market in which no firm has an incentive to compete aggressively, for fear that any competitive act may give rise to a suit for treble damages. Further, each firm has an incentive to enforce this norm by taking competitors to court. The monopolization lawsuit becomes an important instrument in a market in which false convictions occur and can be especially important to firms that are disadvantaged by competition. These firms are apt to enjoy a relative advantage in litigation.¹²²

Third, false convictions encourage firms to bring monopolization claims irrespective of their validity, which increases the frequency of frivolous or bad-faith litigation in the courts. Frivolous litigation is costly to society even if it has no harmful side effects. However, frivolous litigation is likely to have harmful side effects. As the frequency of frivolous

¹²⁰ See, e.g., *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227, 231-32 (1st Cir. 1983).

¹²¹ See, e.g., George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. 44 (1964).

¹²² See, e.g., THE CAUSES AND CONSEQUENCES OF ANTITRUST: THE PUBLIC CHOICE PERSPECTIVE 180-181 (Fred S. McChesney & William F. Shugart II eds., Univ. of Chicago Press 1995) (discussing incentives of weak competitors to use antitrust laws). See also William J. Baumol & Janusz A. Ordover, *Use of Antitrust to Subvert Competition*, 28 J.L. & ECON. 247 (1985). These incentive effects exist even if lobbying alone is insufficient to secure government cooperation in the litigation. See Page, *supra* note 21.

monopolization claims increases, holding fixed the rate of false convictions, firms will find it increasingly hard to tell whether damages have been awarded appropriately in any given case decided by a court. But this would only increase the incentive to bring frivolous claims and to avoid competition, as firms lose faith in the competence of courts to distinguish good and bad claims.

Thus, even if all firms comply with a non-competition norm—an undesirable byproduct of a false convictions regime—as long as there is a substantial risk of a false conviction, each firm will have an incentive to seek damages from a competitor after any event that causes a shift of business from one firm to another. For example, if a reduction in the ozone layer causes a shift of business from one maker of sunglasses to another, the loser will have an incentive under a false-convictions regime to seek treble damages from the winner, on the theory that the winner's output and price decisions were predatory. This may seem to be a ludicrous example, but the lure of treble damages has brought forth novel and ingenious legal arguments in the past, such as the claim by the plaintiffs in *Matsushita* that Japanese television manufacturers had engaged in a predatory conspiracy for roughly twenty years.¹²³

False convictions for monopolization, thus, appear substantially more threatening to consumer welfare than false acquittals. False acquittals leave the market in a condition in which competition is more likely over the long run. Although competition sometimes is brutal and can seem unfair to competitors, it serves to maximize the welfare of consumers. That is why promoting competition, not protecting competitors, is so widely recognized as the goal for antitrust.¹²⁴ Notwithstanding temporary departures from the competitive equilibrium, the general trend of competitive forces, toward greater output, variety, and lower prices remains intact in a market with false acquittals. False convictions, on the other hand, generate a process that seems the reverse of that observed in competitive markets. Firms learn to avoid competition and to share the benefits of high prices with rivals and input providers.¹²⁵ Output is lower, relative to the market with false acquittals, and prices are higher. This

¹²³ *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 591 (1986).

¹²⁴ See, e.g., BORK, *supra* note 14, at 58-61, 81-89; POSNER, *supra* note 14, at 101-113 (criticizing horizontal merger cases for deviating from accepted principle of protecting competition). But see Robert H. Lande, *Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged*, 34 HASTINGS L.J. 65 (1982).

¹²⁵ See, e.g., POSNER, *supra* note 14, at 215-216 (discussing perverse consequences of restraining competitive acts of dominant firm).

should not be surprising when the choice—as it is in monopolization cases, in contrast to cases involving collusive behavior such as price-fixing—is between errors favoring too much competition and errors favoring too little competition.

This divergence in error costs is likely to be greater when the dynamic nature of competition is taken into account. Since monopoly profits attract entrants, there will always be competitors ready to take business away from a dominant firm that gouges consumers with high prices and poor products. The presence of these competitors, some already in the market and others waiting in the wings, will continually put pressure on the dominant firm to keep its prices low and to continually improve its products.¹²⁶ By this process, the social cost of false acquittals will be constrained and should decline over time. In a regime of false convictions, however, there is no comparable market mechanism to constrain false-conviction error costs over time. Entry would not constrain false-conviction costs, because each entrant would be subject to an attempted monopolization claim if it went at the market too aggressively. Entrants would learn to behave as incumbents do, and avoid competition.

Given the asymmetry in error costs, with false convictions costing far more than false acquittals, we think the sole purpose test, which is the one most consistent with the general approach of antitrust courts in monopolization cases, is superior to the unnecessarily restrictive test proposed by Salop and Romaine. Salop and Romaine are able to reach the opposite conclusion only because they severely discount the potential error costs associated with false convictions.

Salop and Romaine seem to think that the cost of false convictions can be kept to a tolerable level under their proposed test. However, they ignore the incentive for rent-seeking litigation in a regime which fails to minimize false convictions for monopolization. There is an important fact of life that economists often fail to realize when they apply their tools to antitrust: hypothetical legal rules that seem to work well in economic models may work quite poorly in real courts. The reason for this sad fact is that courts are staffed by judges, not economists, and lawyers are motivated by money to exploit any legal rule to the advantage of their clients. Thus, a rule that would work well if always applied accurately, but would generate rent-seeking litigation if sometimes applied inaccurately, may be unwise because the rent-seeking incentives are likely

¹²⁶ See, e.g., BAUMOL, PANZAR & WILLIG, *supra* note 119, at 191-242 (discussing general theory of equilibrium with Entry); FISHER, MCGOWAN, & GREENWOOD, *supra* note 1, at 24-25.

to dominate.¹²⁷ As we have suggested, this general criticism applies to the legal standard proposed by Salop and Romaine.

We have noted that antitrust courts have generally been unwilling to apply the unnecessarily restrictive test proposed by Salop and Romaine. Some courts have openly defended this conservative approach on the basis of a comparison of relative error costs.¹²⁸ However, in general antitrust courts have shown a reluctance to conduct the sort of cost-benefit balancing that Salop and Romaine recommend because it would push judges beyond their area of competence and require courts to take on some of the functions of public utility regulators. For in order to determine with some degree of accuracy whether a dominant firm had expanded its capacity in order to preempt a rival or in order to meet projected demand, a court would have to delve deeply into business records and market demand projections. The Supreme Court expressed a reluctance to take on that kind of inquiry in the earliest cases interpreting the Sherman Act,¹²⁹ and since then antitrust courts have stayed away from taking on the duties of regulatory boards.¹³⁰

Of course, the issue of institutional competence is closely related to that of error costs; they are, in a sense, two sides of the same coin. It is not an accident that courts sometimes adopt bright-line rules instead of complicated balancing tests with respect to certain issues. Courts adopt bright-line rules because they are aware that the alternative balancing test is likely to be applied so inaccurately that total error costs are minimized by adopting a bright-line rule even though it may favor one party.¹³¹ For example, “custom” rules, shielding the defendant from liability as long as he has complied with the custom of his profession or industry, have often

¹²⁷ See, e.g., McChesney & Shugart eds., *supra* note 122; Ronald A. Cass & Michael S. Knoll, *The Economics of “Injury” in Antidumping and Countervailing Duty Cases: A Reply to Professor Sykes*, in *ECONOMIC DIMENSIONS IN INTERNATIONAL LAW: COMPARATIVE AND EMPIRICAL PERSPECTIVES* 126-165 (Jagdeep Bhandari & Alan O. Sykes eds., Cambridge Univ. Press 1997).

¹²⁸ See, e.g., *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227, 235-36 (1st Cir. 1983).

¹²⁹ See, e.g., *United States v. Trans-Missouri Freight Assn.*, 166 U.S. 290, 331-332 (1897).

¹³⁰ See, e.g., Donald F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75 HARV. L. REV. 655, 669 (1962) (rejecting public utility interpretation of the Sherman Act).

¹³¹ See, e.g., RICHARD A. EPSTEIN, *SIMPLE RULES FOR A COMPLEX WORLD* 6-7 (Harvard Univ. Press 1995); Antonin Scalia, *The Rule of Law as a Law of Rules*, 56 U. CHI. L. REV. 1175 (1989).

been adopted by courts hearing tort disputes.¹³² These rules prevent courts from independently applying the negligence test (a general cost-benefit test) when the defendant has complied with the custom. Physicians, for example, are not held liable for malpractice when they have complied with the customs of the medical profession.¹³³ Courts uniformly have accepted this standard in the common—and intuitively compelling—belief that erroneous decisions would occur more frequently if judges or juries were permitted to define the appropriate standard of conduct in each malpractice case.¹³⁴ With respect to the Section 2 monopolization standard, antitrust courts have adopted the sole purpose test for the same reason.

As part of their normative argument regarding the proper standard under Section 2, Salop and Romaine state that anti-competitive intent should not be a consideration except so far as it explains an otherwise ambiguous action; courts should focus primarily—perhaps exclusively—on the anti-competitive effects of the defendant’s conduct.¹³⁵ They suggest that courts might try to find actual evidence of intent to clarify the true purposes of corporate actions with potentially anti-competitive effects.¹³⁶ Our defense of the sole purpose test suggests a reason why courts will continue to treat intent in applying the monopolization standard in a different way than Salop and Romaine envision. Intent, as noted above, is a vague and typically useless concept in antitrust law.¹³⁷ Every competing firm wants to monopolize the market and drive its competitors out of business, and given this fact it would seem that every firm is guilty of possessing an anti-competitive intent.¹³⁸

Typically judges deciding Section 2 cases find anti-competitive intent when the defendant fails to offer any pro-consumer justification for his conduct. This was the case in *Aspen Ski* and in *Lorain Journal*.¹³⁹ In both cases, the Supreme Court upheld lower court findings of anti-competitive intent. These opinions indicate that the defendants were *not* punished merely because they sought to dominate their respective markets.

¹³² See, E.g., WILLIAM L. PROSSER, HANDBOOK ON THE LAW OF TORTS § 33, at 166-168 (West Pub. Co., 4th ed. 1971).

¹³³ *Id.* at 165.

¹³⁴ *Id.* at 164.

¹³⁵ Salop & Romaine, at 660.

¹³⁶ See Salop & Romaine, at 660 n.121

¹³⁷ See discussion *supra* text at notes 66-72.

¹³⁸ See, e.g., A.A. Poultry Farms v. Rose Acre Farms, 881 F.2d 1396, 1396 (7th Cir. 1989); Fisher, *supra* note 65.

¹³⁹ Aspen Skiing Co., 472 U.S. at 608-609; Lorain Journal Co., 342 U.S. at 154-55.

They were punished because they could not offer a reasonable efficiency justification; and given this failure, the proper inference is that their actions were purely anti-competitive rather than the mixed sort involving a combination of potential benefits to consumers and potential barriers to competition.¹⁴⁰

The fact that courts often refer to anti-competitive intent is not, as Salop and Romaine suggest, an odd feature that remains largely as a result of some useless precedent. Nor, on the other extreme, is it an indication that judges engage in the perilous activity of divining actual intent in these cases by looking at what corporate personnel said to each other or to customers or to reporters. As we have said, unlike price-fixing cases or other settings in which the statements of corporate personnel are important for their *effect* on other actors, not for representing their motivations, monopolization cases are extremely unlikely to offer meaningful opportunity *or reason* to inquire into individuals' state-of-mind.¹⁴¹ Salop and Romaine are quite right in saying that “[w]hen there are multiple motives and effects, it is impossible to talk about *the* purpose of the conduct.”¹⁴² Courts could reach the right conclusions without referring to intent, and when they use the term in monopolization cases, they are referring more to an analytical construct in the nature of a burden of persuasion than to an inquiry into personal motives and beliefs.¹⁴³

What Salop and Romaine fail to note, however, is that the limited use now made of the “intent” concept in Section 2 cases takes the law in a very different direction than they would or than the DOJ would. Reference to “intent” serves the useful purpose of constraining courts to apply a sole purpose standard to monopolization cases. It reminds decision-makers that only if no legitimate purpose is plausible will courts presume conduct to be sufficiently anti-competitive as to violate Section 2's commands.¹⁴⁴ This approach serves as a screen that filters out monopolization claims brought against defendants where the conduct involves potential consumer benefits coupled with potential barriers to competition. Courts have decided, correctly in our view, that applying monopolization strictures is inappropriate for these types of cases.

¹⁴⁰ *Id.*

¹⁴¹ See discussion *supra* text at notes 66-72.

¹⁴² Salop & Romaine, at 653.

¹⁴³ See, e.g., *Brooke Group*, 509 U.S. at 231-232, *Barry Wright*, 724 F.2d at 232, *Rose-Acre Farms*, 881 F.2d at 1400-1402.

¹⁴⁴ See, e.g., *Barry Wright*, 724 F.2d at 231-32, *Rose-Acre Farms*, 881 F.2d at 1400-1402.

The “Special Case” of “Network Markets”

To this point, we have considered the general case for choosing the sole purpose test over the unnecessarily restrictive conduct test. However, part of Salop and Romaine’s argument includes the claim that the market for operating software is different, largely because of the existence of network effects. They claim that monopoly is more durable, and entry more difficult in markets with network externalities.

Even if these observations are true, they are insufficient to justify modifying a legal standard that has been applied reasonably well across the board to all sorts of industries with varying entry conditions. The key question is whether network effects prevent entry, or make entry so difficult that it would be appropriate to treat network industries under a legal standard that differs from that applied to all other industries. We are aware of no evidence proving entry infeasible in markets with network effects, or demonstrating that network industries should be judged under a different legal standard.

Moreover, in assessing the difficulty of entry, it is not enough, in our view, simply to mention the existence of network effects, or the chicken-and-egg problem, features asserted by Salop and Romaine as reasons for treating Microsoft differently from dominant firms in other markets.¹⁴⁵ The existence of network effects implies only that successful entry is difficult, not that it is impossible. Moreover, while network effects imply that the *probability* of successful entry is lower than it would otherwise be, they also imply that the *payoff* from successful entry is larger than it would otherwise be. The incentive to enter is determined by the *expected payoff* from entry, which is the product of the probability of successful entry and the payoff from successful entry. Network effects theory tells us that the probability is lower and the payoff is higher. It should be clear that this falls far short of offering a theoretical demonstration that entry conditions should be assumed to be radically different in network industries. Before anyone can conclude that the incentive to enter is lower in a network market, there are a few questions that should be answered. Is the probability of successful entry lower in a network market than in a comparable market without network effects? If the probability of successful entry is lower in the network market than in comparable markets, is the payoff from successful entry large enough to offset the dilution of entry incentives due to the lower probability of success?

¹⁴⁵ Salop & Romaine, at 663.

It is a commonplace of economic analysis that as expected returns on an investment rise, so does the magnitude of the investment made in order to compete for the return.¹⁴⁶ This relationship tends to drive investment in such industries to the point at which the expected return from marginal investment in that arena equals the return expected elsewhere.¹⁴⁷ Why should that not hold for investment in industries with network effects just as much as for other investments?

While the equal-expected-payoff story is an analytically sound starting point, there is no guarantee that the equality will hold in all cases. It is possible, for instance, that risk aversion will skew investment decisions. If there is a systemic tendency to under-investment in riskier propositions, there could be a reduction in the risk-adjusted value of low probability-high payoff investments. So far as we know, however, there is no robust explanation of why thick capital markets would systematically over-weight low-risk investments. For at least some sectors of the market, indeed, there is a well-developed literature exposing widespread tendencies to *over-invest* in risky propositions.¹⁴⁸ These explanations primarily address situations involving exogenous constraints on capital markets—the US savings-and-loan debacle is a prime example.¹⁴⁹ Agency-cost theory has informed attempts to extend the analysis to corporate investment more broadly, but these extensions are open to considerable question.¹⁵⁰ At present, the most that can be said with confidence is that the equal-

¹⁴⁶ This is an implication of basic investment theory, *see, e.g.*, RICHARD BREALEY & STEWART MYERS, *PRINCIPLES OF CORPORATE FINANCE* 180-181 (McGraw-Hill, 2d ed. 1984) (discussing investment on the basis of present value, with adjustment of risk).

¹⁴⁷ *See, e.g.*, WILLIAM J. BAUMOL, *ECONOMIC THEORY AND OPERATIONS ANALYSIS* 648-649 (Prentice-Hall, 4th ed. 1977).

¹⁴⁸ JAMES L. PIERCE, *THE FUTURE OF BANKING* 63-66 (Yale Univ. Press 1991) (discussing incentives of banks to lend in risky markets).

¹⁴⁹ *Id.* at 73-74 (discussing record of bank lending in risky markets, and subsequent crises, including the savings-and-loan debacle).

¹⁵⁰ One setting in which a firm has an excessive tendency to invest in risky projects is the case in which the firm expects to go into bankruptcy if the project fails, or under other conditions in which the firm will be excused from having to pay for the failed project. For example, a borrower who does not intend to repay his loan will have an incentive to choose the riskiest project available, since he only has to think about the upside risk. This incentive explains the tendency of lenders to ration credit in settings where they cannot distinguish high from low risk borrowers. For an excellent discussion of this incentive problem, *see* DEBRAJ RAY, *DEVELOPMENT ECONOMICS* 554 (Princeton Univ. Press 1998). Of course, in ordinary settings, one also could make the opposed argument, that managers, in order to protect their firm-specific human capital investments, have an incentive to choose the safest projects, perhaps *unduly* safe projects. Both the stories of excessively risky investment and of excessively safe investment draw on plausible agency-cost explanations.

expected-payoff story is plausible and has not been replaced by any strong general theory to the contrary.

Let us, however, give Salop and Romaine the benefit of the argument here. Assume that there is a tendency to under-invest in low probability-high payoff events. If that is so, and if that describes investment in markets with large network effects, it still does not provide plain support for intervention. Indeed, intervention in such markets is analogous to a tax on a successful entrant. If the reward of a high payoff already is undervalued, the threat of an additional penalty to investments that yield such payoffs would seem a peculiar way of encouraging additional investment.

Salop and Romaine have a great deal to say about a related topic, the connection between network effects and innovation incentives. Most of what they say on this subject is inconclusive and openly speculative. Consider, for example, their observation that one “might argue that exclusion does not increase total innovation, but actually decreases innovation competition, by reducing the incentives of new entrants to attempt to compete on the basis of better products.”¹⁵¹

Such observations are weak analytical reeds on which to base important policy prescriptions. Analytically, the probability-payoff framework discussed above applies to the innovation issue as much as to other investments needed to enter a network industry. If network markets are different in the sense that a favorable market position, once achieved, is more durable, this merely implies that the incentive to innovate is generally greater in network markets. The same arguments applicable to investment across the board also apply to innovation investments.

Indeed, if there is greater durability to returns from investment because of greater insulation from the erosion of successes in network markets (which, we repeat, are not clearly correct assumptions in any meaningful measure), that describes the basic structure thought to *encourage* innovation. Intellectual property rights enhance the payoff from successful innovation while raising the cost to other firms of competing with the right holder.¹⁵² In that sense, the Salop and Romaine analysis is at odds with the basic theory behind intellectual property rights. Such rights are

¹⁵¹ Salop & Romaine, at 655.

¹⁵² See, e.g., Kenneth W. Dam, *The Economic Underpinnings of Patent Law*, 23 J. LEGAL STUD. 247, 249-250 (Princeton Univ. Press 1994); William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325 (1989).

granted to enhance both the quantity and quality of new products.¹⁵³ Weakening such rights may have effects exactly opposite those suggested by Salop and Romaine. Whether our intellectual property laws in fact have gotten the incentive issue right—both the direction and magnitude of effects from issuance of those rights—is debated.¹⁵⁴ But Salop and Romaine do not purport to be rewriting those laws. Instead, they cast their effort as one of analyzing other consumer welfare issues. And antitrust litigation hardly seems the right venue for altering the basic underpinnings of copyright and related laws.

Ultimately, we cannot answer whether network markets have sufficiently distinctive characteristics from other markets to merit different treatment under antitrust or other laws. But when Salop and Romaine contend for a changed antitrust standard for those markets, they have a burden of providing more than speculation that investment may be discouraged and innovation reduced. As with other aspects of their analysis, they have provided a set of possibilities. These are not more likely to be true than the obverse in each case. Such weak speculation is an unlikely and unwise source of guidance for proposed changes in antitrust law in any event and especially where the changes would at the same time reduce the intellectual property protections that generally are thought to encourage innovation.

CONCLUSION

¹⁵³ See, e.g., *Mazer v. Stein*, 347 U.S. 201, 219 (1954); *Sony Corp. of America v. Universal City Studios*, 464 U.S. 417, 429 (1984); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265 (1977) (presenting “prospect theory,” which emphasizes incentive of patent holder to enhance the quality of an invention). See also Mark F. Grady & Jay I. Alexander, *Patent Law and Rent Dissipation*, 78 VA. L. REV. 305 (1992); Jack Hirshleifer, *The Private and Social Value of Information and the Rewards to Inventive Activity*, 61 AM. ECON. REV. 561 (1971).

¹⁵⁴ See, e.g., Stephen J. Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281 (1970); Grady & Alexander, *supra* note 153; Richard Gilbert & Carl Shapiro, *Optimal Patent Length and Breadth*, 21 RAND J. ECON. 106 (1990); Wendy J. Gordon, *An Inquiry into the Merits of Copyright: The Challenges of Consistency, Consent, and “Encouragement” Theory*, 41 STAN. L. REV. 1343 (1989); Paul Klemperer, *How Broad Should the Scope of Patent Protection Be?*, 21 RAND J. ECON. 113 (1990); Robert P. Merges & Richard Nelson, *Market Structure and Technical Advance: The Role of Patent Scope Decisions*, in ANTITRUST, INNOVATION, AND COMPETITIVENESS (Thomas M. Jorde & David J. Teece eds., Oxford Univ. Press 1992). See generally, WILLIAM D. NORDHAUS, INVENTION, GROWTH, AND WELFARE: A THEORETICAL TREATMENT OF TECHNOLOGICAL CHANGE (Pub. 1969);

Mark Twain has a wonderful passage in *Life on the Mississippi* poking fun at popular pseudo-science. Twain begins with the observation, gleaned from a news story, that soil was being carried down the Mississippi River and deposited at the delta near the mouth of the river; as the deposits built over time, the river was becoming shorter, according to the story. From that humble start, Twain spun a series of possible consequences, ending with Chicago and New Orleans joining and electing a single mayor for both. He asks where but in science can you can such wholesale returns in conjecture for such a trivial investment in facts.¹⁵⁵ Twain had not encountered modern economic analysis of antitrust issues.

¹⁵⁵ MARK TWAIN, *LIFE ON THE MISSISSIPPI* 156 (Harper & Row 1917; originally published 1883). We owe Glen Robinson for reminding us of this story.