

ANTITRUST ATTACKS ON PATENT ASSERTION ENTITIES

MARK S. POPOFSKY
MICHAEL D. LAUFERT*

PAEs are antitrust's latest "new new thing."¹ The last few years have witnessed, as this Symposium attests, the antitrust community's discovery of Patent Assertion Entities (PAEs). PAEs typically do not develop or practice patents.² Rather, PAEs acquire patents from others (for instance inventors, operating companies, or other non-practicing entities) to profit through licensing or patent assertion. PAEs have received significant attention because their activities have become an enormous component of the patent litigation landscape. PAEs in 2012 accounted for 62 percent of all recently filed patent litigation.³ This reflects a staggering four-fold increase in suits filed by PAEs since 2005.⁴

* Members respectively of the District of Columbia and California, and the District of Columbia, Maryland, and Massachusetts Bars. Mr. Popofsky previously served as Senior Counsel to Assistant Attorney General Joel I. Klein in the Antitrust Division of the Department of Justice, and is Adjunct Professor of Advanced Antitrust at the Georgetown University Law Center. We appreciate the thoughtful comments provided by Steven Salop, Fiona Scott Morton, and the editors of this Journal, on drafts of this article.

¹ MICHAEL LEWIS, *THE NEW NEW THING: A SILICON VALLEY STORY* (1999).

² We define PAEs according to a definition given by the Federal Trade Commission. "The business model of PAEs focuses on purchasing and asserting patents against manufacturers already using the technology, rather than developing and transferring technology." FED. TRADE COMM'N, *THE EVOLVING IP MARKETPLACE* 8 (2011) [hereinafter *EVOLVING IP MARKETPLACE*], available at www.ftc.gov/os/2011/03/110307patentreport.pdf. Many entities described as PAEs also engage in other activities. See James Bessen & Michael J. Meurer, *Patent Trolls in Public*, PATENTLYO (Mar. 19, 2013), www.patentlyo.com/patent/2013/03/patent-trolls-in-public.html (describing three types of PAEs: (i) "middlemen" that acquire and assert patents (e.g., Acacia); (ii) "R&D-based" PAEs, that file patents on internal inventions (e.g., Rambus); and (iii) "salvage" PAEs, which are former operating companies that no longer practice their patents (e.g., Asure/Forgent)).

³ See Comments of Google, BlackBerry, Earthlink & Redhat to the Federal Trade Commission and U.S. Department of Justice on Patent Assertion Entities 1 (Apr. 5, 2013) [hereinafter *Google Comments*], available at www.justice.gov/atr/public/workshops/pae/comments/paew-0049.pdf; *Tracking PAE Activity: A Post-Script to the DOJ Review*, RPX BLOG, www.rpxcorp.com/index.cfm?pageid=14&itemid=27 (undated post).

⁴ See *Google Comments*, *supra* note 3, at 1.

PAEs' predominance in the eyes of many is unwelcome. Numerous commentators contend that PAEs, by targeting companies "locked in" to particular technologies, impose enormous innovation-sapping costs without producing corresponding social benefits.⁵ According to one estimate, as of 2010, PAEs imposed approximately \$83 billion direct and indirect costs per year.⁶ PAEs' defenders, by contrast, posit that PAEs encourage innovation, *inter alia*, by facilitating monetization of rights that undercapitalized inventors cannot effectively assert and by better exploiting portfolios that large firms lack the expertise or resources to manage. Yet others contend that so-called PAE abuses reflect symptoms of the patent system's defects.⁷ For its part, the FTC suggested that, although PAEs' benefits are "uncertain," PAEs "can distort competition in technology markets, raise prices and decrease incentives to innovate."⁸

This essay explores—in broad brush—aspects of the question that naturally followed: Can antitrust constrain PAE conduct and, if so, how? Antitrust, we believe, plainly can play a meaningful role. Initially, we advance the proposition that the antitrust laws likely cannot categorically ban PAEs' central activities—patent acquisition and enforcement. The antitrust laws do not impose a general ban on the alienability or enforcement of patents. The antitrust laws, we further posit, likely do not ban one particular PAE model that has garnered

⁵ EVOLVING IP MARKETPLACE, *supra* note 2, at 71 (claiming that the "harms associated with PAE activity" include "the harms associated with all ex post patent assertions," which can "distort competition in technology markets, raise prices and decrease incentives to innovate"); *see also* Comments of Coalition for Patent Fairness on DOJ/FTC Workshop on Patent Assertion Entity Activities 2 (Apr. 5, 2013), available at www.justice.gov/atr/public/workshops/pae/comments/paew-0055.pdf ("[PAEs] goal is to maximize potential settlement value or damages, so PAEs typically threaten or file suit after the defendant has generated a significant revenue stream and after the defendant is locked in to the allegedly infringing products and technologies."); Comments of Dell Inc., Hewlett-Packard Company, and Adobe Systems, Inc. to the U.S. Department of Justice and Federal Trade Commission Regarding Patent Assertion Entity Activities 2–9 (Apr. 5, 2013), available at www.justice.gov/atr/public/workshops/pae/comments/paew-0066.pdf (discussing how PAE activities offer few benefits while imposing a "10.7% tax on private sector U.S. R&D"); Rackspace, the Open Cloud Company Comments to Federal Trade Commission and U.S. Department of Justice Concerning Patent Litigation 2 (Apr. 5, 2013), available at www.justice.gov/atr/public/workshops/pae/comments/paew-0054.pdf ("PAEs do not share knowledge. They do not develop inventions. The entire function of PAEs is to find existing, successful companies and extract a private tax on their success.").

⁶ James Bessen, Jennifer Ford & Michael J. Meurer, *The Private and Social Costs of Patent Trolls*, REGULATION, Winter 2011–2012, at 26, 31.

⁷ *See, e.g.*, Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117 (2013); Joshua D. Wright & Douglas H. Ginsburg, *Patent Assertion Entities and Antitrust: A Competition Cure For A Litigation Disease?*, *infra* this issue, 79 ANTITRUST L.J. 501 (2014).

⁸ EVOLVING IP MARKETPLACE, *supra* note 2, at 71. President Obama proposed legislative reforms and executive actions to combat some PAE harms. *Fact Sheet: White House Task Force on High-Tech Patent Issues*, WHITEHOUSE.GOV (June 4, 2013), www.whitehouse.gov/the-press-office/2013/06/04/fact-sheet-white-house-task-force-high-tech-patent-issues.

significant attention—mass aggregators. Although the aggregation of numerous patents may undesirably increase the royalties a PAE can extract from weak patents, deploying antitrust to bar aggregation, as we explain, would confront potentially intractable line-drawing and practical concerns.

We nonetheless contend that settled antitrust principles might support arresting particular PAE conduct. Patent acquisitions, including by PAEs, remain subject to the Sherman Act and the Clayton Act; we think licensing remedies are particularly appropriate for anticompetitive patent acquisitions by PAEs. We similarly believe that certain privateering arrangements can transgress the Sherman Act and FTC Act, particularly those that raise rivals' costs, divide portfolios of complementary patent rights, or evade F/RAND commitments. Finally, we illustrate how PAEs and Operating Companies can conspire to craft patent settlements that the Sherman Act can condemn.

In short, although PAEs may not entirely cork old wine into new bottles, common law antitrust principles appear capable of identifying and restraining particular PAE conduct that may menace competition.

I. CAN ANTITRUST BAR CORE PAE ACTIVITIES?

A threshold question is whether antitrust provides a tool for banning PAEs. We think that the answer is no. Although many view the salient characteristics of PAEs differently, two bedrock attributes include (i) the acquisition of patents; and (ii) their assertion. Patent acquisitions are subject to the antitrust laws.⁹ Moreover, as described below, the antitrust laws plainly can prohibit discreet acquisitions that threaten to create or anticompetitively facilitate the exercise of market power. But the antitrust laws do not impose a general prohibition on the alienability of property. The same analysis applies to patent assertion. In particular circumstances, the antitrust laws can condemn the assertion of intellectual property rights.¹⁰ But no per se bar exists. On the contrary, the *Noerr-Pennington* doctrine places certain legitimate enforcement activities beyond the Sherman Act's reach.¹¹

⁹ *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195, 1205 (2d Cir. 1981) (“Patent acquisitions are not immune from the antitrust laws.”).

¹⁰ *See, e.g.*, *Walker Process Equip. v. Food Mach. & Chem. Corp.*, 382 U.S. 172 (1965) (holding that enforcement of a patent obtained by intentionally defrauding the USPTO may violate the Sherman Act); *see also Handgards, Inc. v. Ethicon, Inc.*, 601 F.2d 986, 996 (9th Cir. 1979) (condemning bad faith and objectively baseless patent assertion by a monopolist).

¹¹ *See, e.g.*, *Q-Pharma, Inc. v. Andrew Jergens Co.*, 360 F.3d 1295, 1304–05 (Fed. Cir. 2004) (“A patent owner who brings a suit for infringement, without more, is generally exempt from the antitrust laws for that action.”). We do not describe here the limits of, and exceptions to, *Noerr-Pennington*. *Eastern R.R. Presidents Conf. v. Noerr Motor Freight, Inc.*, 365 U.S. 127 (1961); *United Mine Workers of Am. v. Pennington*, 381 U.S. 657 (1965).

A more intriguing question is whether antitrust might effectively proscribe the amassing of very large portfolios, epitomized by Intellectual Ventures (IV).¹² Large portfolios can shield weak patents and raise total royalties through a mechanism that can be described as achieving “strength in numbers” or “safety in numbers.” In certain circumstances, the more patents a PAE brings under common ownership (relative to circumstances where each patent is individually owned), the greater both the PAE’s incentive to assert each patent and an enforcement target’s willingness to pay to terminate the litigation.¹³ This conclusion holds even if the amassed patents are not substitutes and, therefore, the acquisition would not run afoul of a traditional Section 7 theory (discussed below) focused on the improper creation of market power in a particular technology market.¹⁴

The reason is straightforward: In certain circumstances, bringing patents under common ownership can enhance litigation leverage and thereby increase—in some cases radically—incentives to assert even very weak patents. Suppose that an accused product implicates ten separately owned patents each of which has a mere 10 percent chance of being held valid. The holder of each patent will take into account only its own prospects of success in a suit. Because each patent holder confronts a 90 percent chance of losing, each patent holder is very unlikely to seek to enforce its patent, and industry is unlikely to face the costs of infringement suits.¹⁵

Bringing the 10 separately owned patents under a PAE’s common ownership can change this dynamic. Where before each patent owner considered only its *own* prospect of victory, now the PAE considers the prospect of achieving *any* victory. In this example, common ownership increases the prospect of victory from 10 percent to 65 percent.¹⁶ One can create even more striking examples. Bringing 500 separately owned patents, each with a 1 percent chance of success if their holders brought suit, under common ownership

¹² Intellectual Ventures (IV) is a patent aggregator; it acquires and monetizes a vast patent portfolio. IV currently owns 70,000 “IP assets,” nearly 40,000 of which are “in active monetization programs.” *FAQ*, INTELLECTUAL VENTURES, www.intellectualventures.com/index.php/about/faq.

¹³ *See, e.g.*, Fiona M. Scott Morton, Deputy Assistant Att’y Gen. for Econ. Analysis, Antitrust Div., U.S. Dep’t of Justice, Presentation at the Fifth Annual Searle Conference on Antitrust Economics and Competition Policy, Patent Portfolio Acquisitions: An Economic Analysis (Sept. 21, 2012), available at www.justice.gov/atr/public/speeches/288072.pdf (“[B]y combining weak patents into large groups, the troll increases the likelihood that the licensee has infringed at least one valid patent in the portfolio.”).

¹⁴ *See infra* Part II.

¹⁵ *See also* Lemley & Melamed, *supra* note 7, at 1040 n.170 and accompanying text (providing a similar example and citing commentators). For simplicity, this example assumes away enforcement costs and, among other things, assumes the prospects of prevailing on each patent right is independent of the others.

¹⁶ 0.9 to the 10th power is 0.348 , which is the prospect that the PAE will lose on all its patents.

increases the prospect of any victory from 1 percent to 99 percent.¹⁷ In short, the value size brings to a patent portfolio can be unrelated to the merits of, or potential complementary nature of, the constituent patents.

A PAE can harness the power of portfolio size to induce enforcement targets to settle rather than challenge even weak patents. Suppose that the PAE that acquired the 100 patents from separate owners possesses a credible threat to seek an ITC exclusion order. Before the PAE took control of the previously separately owned patents, the operating company had a 90 percent chance of defeating a challenge by any particular rights holder. By contrast, assuming an exclusion order follows from an ITC victory,¹⁸ the operating company now in principle could confront a two-thirds chance of an exclusion order banning its products from the United States.

Moreover, PAEs frequently assert patents in waves¹⁹—styled by some as the “IBM model” of patent enforcement:²⁰ The PAE may disclose only a certain number of patents to a potential enforcement target. The PAE, according to this parable, then threatens the enforcement target: If you do not take a broad license (including to undisclosed patents), we will sue you not only on this initial wave, but, if we lose, sue you again on yet another set of patents.

If sued by a PAE with a reputation for bringing wave after wave of assertions, an enforcement target might view the threat of the PAE continuing to litigate until it wins as credible. Faced with a significant threat of an exclusion order or treble damages, the enforcement target may find it rational to take a portfolio license rather than litigate validity, even if each patent on its own only has a 10 percent chance of surviving a validity challenge.

¹⁷ 0.99 to the 500th power is 0.0065, which is the prospect that *each* of the 500 patent suits fail.

¹⁸ The President’s recent decision to override the ITC’s exclusion order banning the import of certain iPhones that were found to infringe Samsung’s essential patents may upend this assumption. See Letter from Ambassador Michael B.G. Froman, U.S. Trade Representative, to the Honorable Irving A. Williamson, Chairman, U.S.I.T.C. (Aug. 3, 2013), available at www.ustr.gov/sites/default/files/08032013%20Letter_1.PDF.

¹⁹ See, e.g., Scott Morton, *supra* note 13, at 3–4 (discussing tactic PAEs employ where “if the licensee invests in determining it has not infringed [10 initially asserted patents], the troll will produce another ten”).

²⁰ According to one source, IBM famously responded to Sun’s claim that it did not infringe any of the seven patents IBM asserted by stating: “OK . . . maybe you don’t infringe these seven patents. But we have 10,000 U.S. patents. Do you really want us to go back to Armonk [IBM headquarters in New York] and find seven patents you do infringe? Or do you want to make this easy and just pay us \$20 million.” Gary L. Reback, *Patently Absurd*, FORBES.COM (June 24, 2002), www.forbes.com/asap/2002/0624/044.html. For a discussion of the history of IBM’s patenting and licensing practices, see Ajay Bhaskarabhatla & Deepak Hegde, *An Organizational Perspective on Patenting and Open Innovation* (Oct. 3, 2013) (unpublished manuscript), available at papers.ssrn.com/sol3/papers.cfm?abstract_id=2061924.

These admittedly extreme examples illustrate a basic point. One of Intellectual Ventures' founders has described its underlying model as recognizing the value of "strength in numbers."²¹ From an antitrust perspective, this can mean that assembling a massive portfolio of patents—and Intellectual Ventures possesses the largest in the world—potentially can (i) reduce enforcement targets' incentives to litigate; (ii) shield weak patents from validity challenges; and (iii) greatly increase the incentive to enforce and collect royalties on weak patents. The result is that firms targeted for enforcement will face much higher costs than if the PAE had not assembled the massive portfolio in the first place.²²

So the argument runs in theory. Creating an operational doctrine nonetheless faces numerous challenges. First, patents enjoy a presumption of validity.²³ Unless it is demonstrated that a large PAE possesses very weak patents, antitrust doctrine should hesitate to assume the opposite.²⁴ Second, conventional economic theory holds that bringing certain patents under common ownership can produce efficiencies, most notably from solving the "Cournot Complements" problem.²⁵ A "shielding weak patents" antitrust theory would need to show that the adverse effects of sheltering weak patents outweigh the efficiencies of bringing complementary rights under unified control.²⁶

Third, a viable antitrust theory—whether under Section 1 or 2 of the Sherman Act, or Section 7 of the Clayton Act—likely would need to identify a particular relevant market adversely affected by the PAE's amassing of pat-

²¹ See *Inside Nathan Myhrvold's Mysterious New Idea Machine*, BLOOMBERG BUSINESSWEEK .COM (July 2, 2006), www.businessweek.com/stories/2006-07-02/inside-nathan-myhrvolds-mysterious-new-idea-machine.

²² Jay Pil Choi & Heiko Gerlach, *Patent Pools, Litigation and Innovation* 19 (CESifo Working Paper Oct. 2013) (discussing economic framework for how combining complementary patents "can be used for safe-harboring weak patents from litigation in order to elevate the overall licensing fees"), available at www.cesifo-group.de/DocDL/cesifo1_wp4429.pdf.

²³ See 28 U.S.C. § 283.

²⁴ One could craft a similar theory that PAEs shield patents that are unlikely to be infringed. Such a theory, however, would require empirical grounding. The Supreme Court's recent decision in *FTC v. Actavis, Inc.*, 133 S. Ct. 2223 (2013), comports with these conclusions. Just as the Court refused to oust the Sherman Act's applicability to patent settlements based on patent law's presumption of validity (*id.* at 2230–31), courts should hesitate before assuming (without further facts) that patents are invalid when conducting substantive antitrust analysis. See *id.* at 2236–37 (suggesting that an inference of invalidity might be warranted based on certain settlement features).

²⁵ Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2013–14 (2007) ("The Cournot-complements effect arises when multiple input owners each charge more than marginal cost for their input, thereby raising the price of the downstream product and reducing sales of that product. Effectively, each input supplier imposes a negative externality on other suppliers when it raises its price, because this reduces the number of units of the downstream product that are sold.") (internal citations omitted).

²⁶ See also Lemley & Melamed, *supra* note 7, at 1041.

ents.²⁷ The concern raised by the shielding of weak patents does not require an increase in concentration in any particular technology market. Accordingly, one might point to the potential for aggregations that shield weak patents to increase the costs of competing in, and the potential to impair the competitive structure of, a particular product market. A theory premised on the contention that shielding weak patents harms innovation or improperly creates market power, too, would face obstacles in concretely identifying a detrimentally affected relevant market.

Consistent with our analysis, one court recently rejected antitrust counterclaims brought against Intellectual Ventures alleging that Intellectual Ventures “engaged in exclusionary and anticompetitive conduct” by, among other things, threatening to assert acquired patent rights in waves and “conceal[ing] the extent of its patent holdings.”²⁸ The court dismissed the antitrust claims because of failure to allege a cognizable relevant market, insufficient allegations of monopoly power, and lack of anticompetitive conduct.²⁹

Nonetheless, armed with the right empirical backing—for instance, showing that PAEs generally assert weak patents and that PAEs assemble large portfolios to shield weak patents from challenge—the FTC might apply the above insights to seek to ban PAEs from amassing very large patent holdings under FTC Act Section 5. However, the FTC would face significant line-drawing problems: How big a portfolio is too big?³⁰ What type of patent acquisitions trigger the “safety in numbers concern”—the purchasing of patents clustered in particular industries or other types of acquisitions? Would a PAE be able to mount a defense in a particular case if its post-acquisition portfolio brought together strong Cournot complements? The FTC, too, would face significant issues in fashioning particular relief, including whether to compel reasonable royalty licensing or break up the portfolio found to be in violation of Section 5.

²⁷ Cf. *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195, 1206 (2d Cir. 1981) (patent acquisitions lawful if relevant market did not exist at time of acquisition).

²⁸ Answer to Complaint & Counterclaims ¶ 57, *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, No. 1:13-CV-00740-AJT-TRJ (E.D. Va. filed Sept. 11, 2013).

²⁹ See Memorandum Opinion, *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, No. 1:13-CV-00740-AJT-TCB (E.D. Va. Dec. 18, 2013). The court rejected a Clayton Act § 7 claim on the ground that the threatened detrimental effects did not allegedly result from patent acquisition (which, the court posited, could have been the case if “IV had acquired all substitutes or competing technologies”), but rather “from conduct that post-dates the acquisition.” *Id.* at 16–17.

³⁰ Some assert that “the sheltering effect of patent aggregation is as a practical matter exhausted at relatively modest levels of patent aggregation.” Lemley & Melamed, *supra* note 7, at 1040–41.

II. WHAT PAE ACTIVITIES CAN ANTITRUST EFFECTIVELY CONSTRAIN?

The above-described concerns suggest that the antitrust laws cannot ban core PAE conduct outright.³¹ As we demonstrate next, however, the same conclusion does not hold with respect to particular practices in which PAEs engage. Particular PAE conduct may trigger antitrust scrutiny. We describe three types of activities below. Numerous other arrangements involving PAEs, of course, also could implicate the antitrust laws.

A. ACQUISITIONS OF SUBSTITUTE PATENTS

The antitrust laws reach, and in principle can condemn, a PAE's acquisition of substitute patent rights.³² A DOJ Business Review Letter refusing to approve a patent clearing house that might price and license substitute patents demonstrates that the antitrust enforcement agencies recognize the underlying concern.³³ In the PAE context, the acquisition of substitute patent rights might unlawfully create market power in properly defined technology markets. Indeed, depending on how market share is measured, challenges to such acquisitions might benefit from the presumption of illegality established by *Philadelphia National Bank*.³⁴

³¹ We do not, and should not be read to, advocate foreclosing a court or agency from invoking the theory that a PAE's acquisition activities anticompetitively shield weak patents in a particular case where supported by the facts.

³² See U.S. Dep't of Justice & Fed. Trade Comm'n, Antitrust Guidelines for the Licensing of Intellectual Property § 5.7 (1995), available at www.justice.gov/atr/public/guidelines/0558.pdf (stating that the agencies assess acquisitions of intellectual property rights under Section 7 of the Clayton Act, among others); U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 6 (combination of competing assets "may alone constitute a substantial lessening of competition"), available at ftc.gov/os/2010/08/100819hmg.pdf; see also *SCM*, 645 F.2d at 1205 (declining to immunize patent acquisitions from antitrust). Certain courts also have indicated that the acquisitions of patents can be unlawful where the effect is to raise entry barriers. See, e.g., *Salomon S.A. v. Alpina Sports Corp.*, 737 F. Supp. 720, 723 (D.N.H. 1990) (sustaining unfair competition claims). Cf. *Kobe, Inc. v. Dempsey Pump Co.*, 198 F.2d 416 (10th Cir. 1952) (condemning patent accumulation). We do not deal here with scenarios whereby operating companies induce PAE surrogates to acquire patents and assert them against rivals. However, such scenarios could raise concerns similar to those that drove the DOJ to block Microsoft's acquisition of patents through CPTN. See generally Mark S. Popofsky & Michael D. Laufert, *Patent Assertion Entities and Antitrust: Operating Company Patent Transfers*, ANTITRUST SOURCE, Apr. 2013, www.americanbar.org/content/dam/aba/publishing/antitrust_source/apr13_popofsky.authcheckdam.pdf.

³³ See Letter from William Baer, Assistant Att'y Gen., Antitrust Div., U.S. Dep't of Justice, to Garrard Beeney, Sullivan & Cromwell LLP 8 (Mar. 26, 2013), available at www.justice.gov/atr/public/busreview/295151.pdf (discussing anticompetitive effects of pooling substitute patents).

³⁴ *United States v. Phila. Nat'l Bank*, 374 U.S. 321, 363 (1963) (holding presumption of anticompetitive effects can arise from showing that an acquisition substantially increases concentration in a relevant market).

Some nonetheless contend that, in the information technology (IT) sector where PAE activity is the most prevalent, the “aggregation” of “patents will rarely warrant intervention.”³⁵ These commentators posit that patents in the IT space rarely confer market power.³⁶ Even if this objection had merit, PAEs are extending their reaches to other industries, where patents historically have played a central role. For example, PAEs are increasingly targeting other innovative industries, including biotechnology. In 2010, the Alzheimer’s Institute of America (AIA), an organization “best known for filing lawsuits against companies and researchers,”³⁷ sued Jackson Laboratory, the largest repository of research mice in the world, for allegedly infringing AIA’s patent covering a DNA mutation linked to Alzheimer’s disease. The case was resolved only after the NIH exercised its power to grant Jackson retroactive authorization to use the patented invention.³⁸ Similarly, Classen Immunotherapies, which contends that it has “expertise” in “discovering patentable adverse events of commercial value,”³⁹ asserted patents “that covered the idea of trying to link infant vaccination with later immune disorders” against four biotech companies and a medical group.⁴⁰ IV claims that it has “100 patent families encompassing more than 1,000 patents and patent applications” in the life sciences, and it is “looking for a few good health technology partners.”⁴¹

Some also contend that applying Clayton Act Section 7 to PAE patent acquisitions based on a horizontal theory would amount to an empty gesture because a PAE could always elect to divest the set of rights that create the concerning horizontal overlap and retain the set of rights most valuable for extracting sunk costs from locked-in implementers. Because many acquisitions of patents by PAEs may escape Hart-Scott-Rodino review,⁴² we expect

³⁵ Jason Albert, Assistant Gen. Counsel, IP Policy & Strategy, Microsoft Corp., Comments of Microsoft Corporation on the Impact of Patent Assertion Entity Activities on Innovation and Competition 7 (2013) [hereinafter *Microsoft Comments*], available at www.justice.gov/atr/public/workshops/pae/comments/paew-0042.pdf.

³⁶ *Id.*

³⁷ Erika Check Hayden, *Patent Dispute Threatens U.S. Alzheimer’s Research*, NATURE, Apr. 7, 2011, at 20, 20, available at www.nature.com/news/2011/110405/pdf/472020a.pdf.

³⁸ Nida Shakir, *The National Institutes of Health, Patents, and the Public Interest: an Expanded Rationale of Justice Breyer’s Dissent in Stanford v. Roche*, 17 INTEL. PROP. L. REV. 143, 143–44 (2012).

³⁹ John Barthelow Classen, President & CEO, Classen Immunotherapies, Inc., Slide Show 1, at 10, VACCINES.NET (Aug. 31, 2011), vaccines.net/newpage115.htm.

⁴⁰ Erika Check Hayden, *‘Patent Trolls’ Target Biotechnology Firms*, NATURE, Sept. 29, 2011, at 521, 521.

⁴¹ *Health Technologies*, INTELLECTUAL VENTURES, www.intellectualventures.com/index.php/inventions-patents/spinouts-programs/health-technologies.

⁴² See Transcript at 172, PAE Activities Workshop (Dec. 10, 2012) (comments by Hill Wellford III, Bingham McCutchen LLP), available at www.ftc.gov/sites/default/files/documents/public_events/Patent%20Assertion%20Entity%20Activities%20Workshop%20/pae_transcript.pdf (discussing the “thorny question” of whether the government can “catch [PAE patent acquisitions] in the pre-merger phase” and describing how MOSAID, a PAE, acquired patents it ex-

Section 7 issues involving PAEs may indeed predominantly appear in the form of counterclaims in private litigation rather than agency review at the time of an IP acquisition. But it does not follow that the only antitrust remedy is divestiture of one set of patents or another. Rather, an antitrust tribunal might compel reasonable royalty licensing.

The FTC's enforcement action in *Flow*⁴³ illustrates a potential remedy for an anticompetitive PAE acquisition of substitute patent rights. There, two makers of waterjet cutting equipment were engaged in patent litigation over waterjet controller technologies, which concluded when Flow, the leading waterjet provider, agreed to acquire OMAX.⁴⁴ The FTC challenged the acquisition, contending that it not only eliminated present competition in waterjet cutting, but also raised entry barriers. The FTC believed that two of OMAX's broad waterjet control system patents made "the development of such a controller substantially more expensive and risky"; Flow's patents were "significantly narrower in scope."⁴⁵ Put differently, even if the OMAX patents were complements when viewed from the perspective of current products, those patents (in the buyer's hands) raised barriers to future competitive entry. As a condition of permitting the merger, and to lower barriers to entry that the transaction in the FTC's view raised, the FTC required Flow to offer royalty-free licenses to the two OMAX controller patents to entrants—that is, effectively dedicate its patents for a particular use to the public.⁴⁶

One could therefore envision a court, in certain circumstances involving PAE patent transfers, requiring reasonable royalty licensing rather than divestiture as a remedy for a Section 7 violation. Although the U.S. antitrust enforcement agencies may only rarely find such "behavioral" relief appropriate, many PAE acquisitions do not trigger, and thus are not subject to, Hart-Scott-Rodino review. Accordingly, their legality may instead be tested in the form of antitrust counterclaims in private litigation or in post-consummation challenges, in which the agencies have shown a greater willingness to consider behavioral relief.⁴⁷ And a reasonable royalty remedy might be attractive to the

pected to be worth "about a billion dollars" for a "booked" value of "something like \$20,000," thus evading HSR reporting); *see also* Letter from Albert Foer, President, American Antitrust Institute, to Saurabh Vishnubhakat, Office of Chief Economist, USPTO 4 (Jan. 25, 2012) (noting that HSR filings are not required for some patent transactions not meeting reporting thresholds), *available at* www.uspto.gov/patents/law/comments/rpii-c_aai_130125.pdf.

⁴³ *Flow Int'l Corp.*, FTC Docket No. 081-0079 (July 10, 2008), *available at* www.ftc.gov/enforcement/cases-and-proceedings/cases/2008/08/flow-international-corporation-matter.

⁴⁴ Analysis of the Agreement Containing Consent Order to Aid Public Comment 1, *Flow Int'l Corp.*, FTC Docket No. 081-0079 (July 10, 2008), *available at* www.ftc.gov/sites/default/files/documents/cases/2008/07/080710analysis.pdf.

⁴⁵ *Id.* at 3.

⁴⁶ *Id.*

⁴⁷ *See* Statement of Comm'r Joshua D. Wright at 1, *Graco, Inc.*, FTC Docket No. 101-0215 (Apr. 17, 2013), *available at* www.ftc.gov/sites/default/files/documents/cases/2013/04/130418

agency were the PAE to contend that the patents brought together were both substitutes and complements (and, therefore, the acquisition might produce efficiencies).

B. OPERATING COMPANY/PAE TRANSFERS (PRIVATEERING)

So-called privateering reflects another set of PAE activities that can raise significant antitrust concerns. Privateering involves operating companies outsourcing strategic patent enforcement to PAEs. For example, an operating company might transfer a patent portfolio to a PAE and provide the PAE a list of priority infringement targets, most likely comprised of the operating company's closest rivals. More subtly, an operating company might transfer patents subject to conditions that induce the PAE to target its rivals. Privateering appears to be a growing phenomenon.⁴⁸ Indeed, certain companies, such as Nokia, have entered into numerous such arrangements with multiple PAEs.⁴⁹ As we explain in another article, Operating Company/PAE transfers in certain

gracowrightstatement.pdf (“One scenario in which behavioral remedies may be appropriate is when the challenged merger has long since been consummated and divestiture or other structural remedies are not a viable option for restoring competition to pre-merger levels.”); Edith Ramirez, Presentation for the ABA Antitrust Fall Forum: FTC Behavioral Remedies 7 (Nov. 17, 2011), available at www.americanbar.org/content/dam/aba/publications/antitrust_law/at311550_fall_forum_panel_5.authcheckdam.pdf (“Behavioral [r]emedies” are “[m]ore likely in consummated mergers.”); J. Thomas Rosch, Remarks Before the ABA Section of Antitrust Law Spring Meeting: Consummated Merger Challenges—The Past Is Never Dead 3, 15–18 (Mar. 29, 2012), available at www.ftc.gov/speeches/rosch/120329springmeetingspeech.pdf (discussing the Commission's reversal in *Evanston* of an ALJ's recommended post-consummation divestiture remedy in favor of a less costly behavioral remedy).

⁴⁸ For example, in January 2013, Ericsson sold more than 2,000 patents to PAE Unwired Planet, a recent patent plaintiff in suits against Ericsson's mobile device competitors, Apple, Google, and Research in Motion (now Blackberry). Dan Graziano, *Ericsson Sold More than 2,000 Patents to a Patent Troll Suing Apple, Google and RIM*, BGR (Jan. 11, 2013), bgr.com/2013/01/11/ericsson-patent-sale-unwired-planet-289522/. Microsoft in 2013 transferred several patents to PAE Vringo as part of a settlement arrangement. *Microsoft and Vringo Shake Hands in \$1 Million Patent Deal*, WIPR (May 31, 2013), www.worldipreview.com/news/microsoft-and-vringo-shake-hands-in-1-million-patent-deal (“Microsoft is increasingly becoming a so-called privateer—a relatively new phenomenon—and the latest deal seems to fit that pattern.”). Privateering was also a significant topic of discussion at the DOJ & FTC PAE Activities Workshop. See Transcript of PAE Workshop, *supra* note 42, at 161, 163–85.

⁴⁹ Nokia, along with Microsoft, transferred 2,000 of Nokia's patents, including 1,200 wireless standard-essential patents (SEPs), to PAE MOSAID in an agreement where Nokia and Microsoft split two-thirds of the revenues MOSAID generates. Mary Jo Foley, *Microsoft Weighs in on Mosaid-Nokia Patent Deal*, ZDNET (Sept. 2, 2011), www.zdnet.com/blog/microsoft/microsoft-weighs-in-on-mosaid-nokia-patent-deal/10523. More recently, Nokia transferred other patents, including hundreds of additional SEPs, to PAEs Sisvel, Vringo, and Pendrell. See Press Release, Sisvel Int'l, Sisvel Acquires over 450 Nokia Patents, Including Over 350 Patents Essential to Wireless Standards (Jan. 12, 2012), available at www.sisvel.com/index.php/sisvel-news/257-sisvel-acquires-over-450-nokia-patents-including-over-350-patents-essential-to-wireless-standards2; Vringo, Current Report Form 8-K (Aug. 10, 2012), sec.gov/Archives/edgar/data/1410428/000114420412045768/v321254_8k.htm; Joff Wild, *Nokia Does Privateering Deal with Pendrell, the NPEs Third Big Acquisition in Last Year*, IAM MAG. (Mar. 25, 2013), www.iam-magazine.com/blog/Detail.aspx?g=d95108d0-f2e4-477a-9a6d-352feda7dfb0.

circumstances can raise rivals' costs, harm competition, and potentially violate Sections 1 and 2 of the Sherman Act or Section 7 of the Clayton Act.⁵⁰ We describe three types of conduct that might undergird such theories.

First, Operating Company/PAE transfers can raise rivals' costs by increasing the ability or incentives to enforce the transferred patents.⁵¹ Competitors might refrain from asserting patents, effectively resulting in the "barter[ing]" of royalties "down to zero."⁵² But when one such firm transfers patents to a PAE (and, especially, when the firm induces the PAE to seek a running royalty), the consequence, in certain settings, may be higher costs and lower output.⁵³ Depending on the facts, the transfer from the operating company to the PAE might subject either or both parties to antitrust liability. For example, if the transfer to the PAE, by removing constraints on the operating company's ability to enforce patent rights, creates a dangerous threat of the operating company achieving monopoly power, the transfer might violate Sherman Act Section 2.⁵⁴

Second, operating company transfers to PAEs can raise rivals' costs by evading "no stacking" or other F/RAND commitments; for example, by disaggregating a portfolio of complementary patents, and fostering royalty stacking.⁵⁵ There are two distinct theories. First, if an operating company

⁵⁰ Popofsky & Laufert, *supra* note 32, at 4–5. Others have explored these issues. *See, e.g.*, Scott Morton, *supra* note 13 (analyzing implications of patent transfers to PAEs).

⁵¹ Popofsky & Laufert, *supra* note 32, at 4–5.

⁵² Scott Morton, *supra* note 13, at 1.

⁵³ For the view that this concern is overstated, see Lemley & Melamed, *supra* note 7, at 1023 (contending that "the complaint that patent assertions by trolls are most costly because they cannot be deterred or offset generally has little economic substance"). This view depends on the premise that barter between operating companies typically does not result in lower social costs than payments to PAEs. There are reasons to believe that this premise is unsound. *See* Robert Harris, Prof. Emeritus, UC Berkeley, Presentation to Georgetown Law School Antitrust Symposium, Patent Assertion Entities & Privateers: Economic Harm to Innovation and Competition 13–14 (Oct. 23, 2013) (on file with author) (discussing social benefits derived from operating companies incentives to share technology through cross-licensing agreements or non-assertion positions); *see also* Fiona Scott Morton & Carl Shapiro, *Strategic Patent Acquisitions*, *infra* this issue, 79 ANTITRUST L.J. 463, 482 (2014) (describing the "empirical evidence" that "supports the conclusion that enhanced monetization by PAEs is discouraging innovation and harming consumers").

⁵⁴ Wright and Ginsburg contend that such a theory would deviate from "standard" antitrust analysis. Wright & Ginsburg, *supra* note 7, at 507. We disagree. Assessing how an acquisition affects the ability or incentive to deal with third parties, for example, is standard analysis in vertical mergers. *See* Popofsky & Laufert, *supra* note 32, at 11–12. We do not see why the analysis is any different when the acquired asset is a patent and the question is incentives or ability to enforce. The DOJ employed precisely such logic in blocking Microsoft's acquisition of Novell's patents through the CPTN consortium. *See id.* (describing the DOJ's action to remedy anticompetitive concerns posed the CPTN deal).

⁵⁵ Firms with SEPs often make licensing commitments with "not to exceed" rates to prevent royalty stacking. Disaggregating a portfolio of SEPs by transferring part of a portfolio to a PAE can cause royalty stacking by enabling firms to collectively breach licensing commitments. *See*

disaggregates a previously unified SEP portfolio to multiple PAEs, and the patents in that portfolio comprised Cournot complements, the operating company can raise the costs for enforcement targets even further, without ever bringing a patent enforcement action itself.⁵⁶ This might support an antitrust claim in the operating company's product market. Second, if the transfer to multiple PAEs breaks a F/RAND commitment on which implementers relied, the conduct might support a Sherman Act or FTC Act Section 5 claim against the transferring operating company (and, in some circumstances, its PAE partner) in relation to a particular technology market.⁵⁷

Although the typical "abuse of F/RAND" Section 2 case involves a commitment that was deceptive when made,⁵⁸ the absence of that circumstance is no barrier to the first of these theories—where the anticompetitive conduct is strategic evasion of the F/RAND commitment to obtain or maintain monopoly power in a market other than the technology market. It is unsettled whether deception at the outset is necessary to support the second theory, at least when the claim is for monopolization under the Sherman Act. Because breaking the F/RAND commitment could be viewed as undermining the competitive process (absent the ex post breach, in this example, an SSO or industry would have selected a different technology ex ante), there is an argument that deceptive intent could be unnecessary to a technology market claim.⁵⁹

Third, contractual mechanisms that align operating companies' and PAEs' incentives—what Carl Shapiro has referred to as creating a "hybrid" PAE⁶⁰—

Popofsky & Laufert, *supra* note 32, at 5–6, 8–9. Moreover, such a transfer may also increase the costs of royalty stacking because, unlike in licenses between vertically integrated operating companies, PAEs' licensing demands are not offset by procompetitive cross-licensing. See Scott Morton, *supra* note 13, at 4.

⁵⁶ See Popofsky & Laufert, *supra* note 32, at 5–6; Scott Morton, *supra* note 13, at 4–5.

⁵⁷ See Popofsky & Laufert, *supra* note 32, at 5–6.

⁵⁸ See *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297, 310–13, 314 (3d Cir. 2007) (holding that breach of RAND is "actionable anticompetitive conduct" where SSO relies on false RAND promise, inducing lock-in to patentee's proprietary technologies); see also *Rambus Inc. v. FTC*, 522 F.3d 456, 466–67 (D.C. Cir. 2008) (requiring, for Section 2 liability, a demonstration that SSO would have standardized alternative technologies but for exclusionary conduct). Wright and Ginsburg note these decisions. See Wright & Ginsburg, *supra* note 7, at 510 n.36.

⁵⁹ Cf. Renata Hesse, Deputy Assistant Att'y Gen., Antitrust Div., U.S. Dep't of Justice, Speech Presented at the Global Competition Review 2nd Annual Antitrust Law Leaders Forum: IP, Antitrust and Looking Back on the Last Four Years 21 (Feb. 8, 2013), available at www.justice.gov/atr/public/speeches/292573.pdf (noting commentators' argument that "[c]ompetition and consumers appear to suffer" whether or not an SEP holder intended to deceive the SSO). For the view that holdup by PAEs may present less cause for finding competition concerns, see Wright & Ginsburg, *supra* note 7, at 512–14.

⁶⁰ Carl Shapiro, Presentation at the FTC & DOJ PAE Activities Workshop, Patent Assertion Entities: Effective Monetizers, Tax on Innovation, or Both?, at 4 (Dec. 10, 2012), available at www.justice.gov/atr/public/workshops/pae/presentations/290074.pdf; see also Scott Morton & Shapiro, *supra* note 53, at 489–91.

can form part of a strategy for raising rivals' costs.⁶¹ Operating companies can transfer patents pursuant to agreements that create specific and concrete incentives to target the operating companies' rivals. For example, operating companies at times transfer patents to PAEs but retain the right to direct the transfer elsewhere unless particular milestones are met. Such provisions can give PAEs an incentive to act in the operating company's strategic interests.

We have yet to see antitrust cases brought against PAEs based on privateering theories. But it is only a matter of time, we suspect, before the above theories are tested in court. In particular, we believe that scenarios involving the disaggregation of complementary rights coupled with contractual mechanisms that provide incentives to raise rivals' costs (illustrated, we contend elsewhere, by the MOSAID transaction)⁶² may present circumstances that warrant particular scrutiny.

C. COST-RAISING OPERATING COMPANY/PAE SETTLEMENTS

A variant on the "hybrid" PAE theme includes settlements of patent infringement litigation designed to raise rivals' costs. There are many potential scenarios.⁶³ We illustrate potential antitrust concerns through two variants of a common fact pattern.

Suppose a PAE possesses one patent (one that expires in four years) that implicates an important computer component. Four firms produce the component, with shares of 70%, 10%, 10%, and 10% respectively. The largest supplier, Operating Company 1, enjoys a modest cost advantage over rivals (Operating Companies 2–4). All sell roughly comparable products based largely on price. Barriers to entry are very high. If the PAE prevails, it expects to obtain a running royalty of 4% (or its equivalent in damages), but the PAE possesses a 50% chance of prevailing against each firm. The resulting 2% risk-adjusted royalty is profit-maximizing to the PAE. The PAE asserts patent claims against Operating Company 1. But the PAE elects—at least initially—to refrain from asserting claims against the others (Operating Companies

⁶¹ Costs may be raised "in any number of ways: through settlements or damage awards (especially if they involve running royalties, which raise rivals' marginal costs, thereby increasing rivals' prices and/or reducing their profits); by imposing excessive litigation costs (including diverting the attention of management and technical staff from productive activities); by raising doubts among rivals' customers, who may be concerned about potential liability from using an infringing product." Harris, *supra* note 53, at 31–32.

⁶² See Popofsky & Laufert, *supra* note 32, at 5–6.

⁶³ Fiona Scott Morton and Carl Shapiro illustrate several additional scenarios involving PAE arrangements that may raise downstream rivals' costs in their article in this issue. Scott Morton & Shapiro, *supra* note 53, at 489–91.

2–4).⁶⁴ The PAE and Operating Company 1 then convene negotiations held pursuant to a strict non-disclosure agreement.

1. *Paying a PAE to Raise Rivals' Costs*

Suppose the PAE discloses during the negotiations that it might sue Operating Company 1's rivals (that is, Operating Companies 2–4) and the two parties discuss the following settlement terms: Operating Company 1 shall make a one-time lump-sum payment to the PAE immediately prior to the patent's expiration, a payment equivalent to 4% running royalty on the PAE's patent, on the assumption Operating Company 1's share increases to 95%. The PAE commits to sue Operating Companies 2–4 for infringement of the same patent. The PAE further agrees that (i) if it accepts a settlement on superior terms from Operating Companies 2–4, the settlement must involve a running royalty; and (ii) if the PAE fails to secure prompt (within one year) settlements from Operating Company 2–4, if the patent is invalidated, or if Operating Company 1's share does not increase as projected, Operating Company 1's payment is reduced substantially.

These settlement terms, depending on the facts, could produce gains for both parties. Operating Company 1 could gain from expanding its market power. If the PAE succeeds in promptly obtaining running royalty settlements from Operating Companies 2–4 (for example, at the expected 2% level), those firms will be placed at a further cost disadvantage to Operating Company 1, whose marginal costs do not rise (Operating Company 1 pays an ex post lump sum contingent on raising its rivals' costs). The resulting loss of sales and scale would enable Operating Company 1 to raise prices. Although Operating Company 1 pays the equivalent of a higher expected royalty to the PAE than if it lost the patent litigation (4% as compared to 2%), Operating Company 1 can more than offset that loss by enhancing its market power. In short, Operating Company 1 can pay the PAE to raise its rivals' costs.

The PAE also can gain. The PAE makes less revenue on royalties from Operating Companies 2–4's sales because their output is lower. But Operating Company 1 can compensate the PAE through the terminal lump-sum payment (4%), which is greater than the PAE's expected royalties (2%) on Operating

⁶⁴ It is not uncommon for PAEs to sue large-volume manufacturers as industry "proof of principle" cases to demonstrate a patent portfolio's potency. For example, after NTP succeeded in obtaining a large settlement payment from RIM, it filed suits against AT&T, Verizon, Sprint, Apple, Google, HTC, LG, Microsoft, and Motorola. See Kirk Teska, *The Story Behind the BlackBerry Case*, IEEE SPECTRUM (Mar. 2006), available at spectrum.ieee.org/consumer-electronics/gadgets/the-story-behind-the-blackberry-case/0; Rob Kelley, *BlackBerry Maker, NTP Ink \$612 Million Settlement*, CNN MONEY (Mar. 3, 2006), money.cnn.com/2006/03/03/technology/rimm_ntp/; Tom Krazit, *NTP Files Patent Suits Against AT&T, Sprint and Verizon*, CNET (Sept. 11, 2007), news.cnet.com/8301-13579_3-9775812-37.html; Wikipedia, *NTP, Inc.*, [en.wikipedia.org/wiki/NTP, Inc.](http://en.wikipedia.org/wiki/NTP,Inc.)

Company 1's sales, even on the assumption that Operating Company 1's sales expand. Therefore, the PAE, too, can come out ahead. The ancillary provisions to which the PAE agreed, and which further constrain its litigation options, serve to align its incentives with those of Operating Company 1 and to prevent opportunistic behavior.

The losers, of course, are (i) Operating Companies 2–4, which suffer higher costs, lower sales, and impaired scale, and (ii) consumers, who suffer higher prices both in the short term (because the PAE is induced to seek a running royalty when it otherwise might prefer an immediate lump sum payment) and the long term (from impairment of rivals). In short, through the posited settlement, the PAE and Operating Company 1 can split the gains from enhancing Operating Company 1's market power.⁶⁵ Depending on the facts, such a settlement might implicate Section 1 or 2 of the Sherman Act.⁶⁶

2. *Providing Litigation Assistance to Raise Rivals' Costs*

One reason the above scenario might not unfold is that the higher royalty Operating Company 1 pays the PAE may induce its rivals to litigate rather than settle. For example, if Operating Company 2 learns through discovery in the patent case that Operating Company 1's settlement terms involve no running royalty—and, therefore, the PAE's demands for a running royalty settlement threaten to place Operating Company 2 at a cost disadvantage—the rival might instead elect to seek to invalidate the PAE's patent in litigation.⁶⁷

Another settlement structure could anticipate this problem. Suppose Operating Company 1 agrees to pay the PAE a 4% royalty and provide valuable assistance in the PAE's pursuit of claims against Operating Companies 2–4. Operating Company 1's assistance in the litigation, if extended, raises the

⁶⁵ This example applies the insight that a small increase in the input price rivals pay can lead to overall gains that a dominant firm and input supplier can share. See generally Michael Riordan & Steven Salop, *Evaluating Vertical Mergers: A Post-Chicago Approach*, 63 ANTITRUST L.J. 513 (1995) (discussing potential anticompetitive impact of input foreclosure); Thomas Krattenmaker & Steven Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 YALE L.J. 209 (1986).

⁶⁶ The legality of the settlement terms (or those discussed in other scenarios below) does not depend on the issue of whether a settlement within the "scope" of a patent is lawful. See *FTC v. Actavis, Inc.*, 133 S. Ct. 2223, 2230 (2013) (holding that anticompetitive effects that "fall within the scope of the exclusionary potential of the patent" are not "immunize[d]" "from antitrust attack"). Here, the settlement includes ancillary provisions that concern the terms on which PAEs will settle other litigations.

⁶⁷ Of course, if Operating Company 2 learned through discovery that Operating Company 1 and the PAE effectively agreed on a 4% royalty level, that might make Operating Company 2 suspicious. The PAE and Operating Company 1 can seek to mask the amount of payment for the PAE's rights by entering into a more complicated transaction (for example, one that also involves the PAE providing other value—perhaps patents—to Operating Company 1 for which the PAE receives compensation).

PAE's prospects of prevailing against Operating Company 2–4 from 50% to 75%. The PAE (similar to before) agrees that (i) it will not accept a settlement on superior economic terms from Operating Companies 2–4 absent a running royalty and (ii) if the PAE abandons litigation against Operating Companies 2–4, or the patent is invalidated, Operating Company 1's effective royalty rate (as expressed in the promised lump sum) drops significantly (for example, to 2%).

As in the first scenario, Operating Company 1 can gain from these proposed settlement terms. Before the settlement, Operating Company 1 faced an expected royalty of 2%, as did Operating Company 1's rivals. With the settlement, Operating Company 1 pays more (4% compared to 2%), but there is now a greater prospect that its rivals will accept a settlement that raises their costs. This is because increasing the prospects of the PAE's victory from 50% to 75% increases each of Operating Company 1's rival's expected royalty payment to 3% (75% of 4). The higher risk-adjusted expected royalty rate from litigating to conclusion would become apparent to Operating Companies 2–4 as they assess the PAE's chances of success during the course of the PAE's pre-litigation negotiations or discovery. As before, if Operating Companies 2–4 thereby accept a running royalty settlement (and, here, they might find it optimal to agree to up to 3%), and thereby suffer higher costs, Operating Company 1 can gain in the long run from expanding its market power. The PAE is unambiguously better off in this scenario: it obtains higher royalties from all Operating Companies than it otherwise would have expected before enforcing its patents—gains that flow from the assistance Operating Company 1 provides to hinder its rivals.

This settlement structure between Operating Company 1 and the PAE, too, may raise substantial antitrust concerns. As before, Operating Company 1 can effectively share the prospect of enhanced monopoly power with its PAE partner. Although part of that result flows from the cooperation Operating Company 1 provides the PAE to pursue its rivals, the conduct may not reflect competition on the merits (although Operating Company 1 surely would seek to invoke a *Noerr-Pennington* defense). The terms that in effect penalize the PAE for abandoning litigations against Operating Companies 2–4 again serve to align the PAE's incentives with Operating Company 1's.

III. CONCLUSION

PAEs may be relatively new to antitrust, but the challenge of applying enduring antitrust principles to novel circumstances is longstanding. Our antitrust laws embody a set of common-law principles designed to adapt to new circumstances much like the Constitution. Applying those principles to PAEs suggests that antitrust likely does not supply a warrant for categorically banning core PAE conduct. Nonetheless, traditional antitrust principles constrain

numerous PAE activities. These include not only instances where acquisitions unlawfully bring substitute patents under common ownership, but also privateering arrangements and operating company/PAE settlements designed to raise rivals' costs. As PAE practices evolve, one can expect the antitrust agencies, courts, and counselors to confront numerous other scenarios where anti-trust issues can arise in the years ahead.