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BUILDING PATENT PORTFOLIOS TO FACILITATE CROSS-LICENSING AGREEMENTS: IMPLICATIONS FOR MERGER EFFICIENCY ANALYSIS†

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The intersection of antitrust and patent law has increased in scope and importance over the past several decades. One important issue at this cross-section is the patent holdup problem, which arises when one party makes relationship-specific investments ex ante that incentivizes the other party to engage in opportunistic behavior ex post. Firms facing the potential for holdup can be expected to make investments aimed at minimizing this potential. Numerous methods of solving the holdup problem exist, including using ex ante auctions to identify and alleviate holdup problems, as well as patent reform. Merger is another important, but thus far little-discussed, method by which firms can attempt to solve potential holdup problems. Merger internalizes the externalities that allow for patent holdup. By merging, two firms with relatively undeveloped patent portfolios may gain meaningfully increased bargaining power in licensing negotiations, which they may use to facilitate cross-licensing agreements—thereby decreasing transactions costs and reducing the risk of opportunistism. For purposes of antitrust analysis, courts, agencies, and economists have long recognized that significant efficiencies often derive from cross licensing, including increases in output arising from the diminished marginal costs of production. As the Google-Motorola acquisition exemplifies, merger may provide an important alternative solution to holdup problems, despite being largely overlooked in the contemporary patent holdup debate. This acquisition potentially provides Google with leverage and ownership rights to protect the entire Android ecosystem that cannot be accomplished by alternative

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contractual structures. Such a merger—which increases output that cannot be achieved by alternative structures—appears to satisfy the basic definition of a merger efficiency. Whether these benefits—which presumably would increase output—are cognizable efficiencies in merger analysis is thus an important question.

I. INTRODUCTION

The intersection of antitrust and patent law has increased in scope and importance over the past several decades.[1] The dramatic increase in the number of patents issued[2] and infringement suits filed[3] reveals new frontiers to this complex intersection.[4] One important frontier derives from the increased potential for patent holdup. Patent holdup arises when one party makes relationship-specific investments ex ante that incentivizes the other party to engage in opportunistic behavior ex post.[5] Holdup is

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1. *See, e.g.*, Herbert Hovenkamp, *The Intellectual Property-Antitrust Interface*, *in* 3 ISSUES IN COMPETITION LAW AND POLICY 1979, 1979-2007 (ABA Section of Antitrust Law 2008), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1287628.

2. The number of patent applications and grants has grown exponentially over the last several decades. PTO records show that the total number of patent applications increased from 104,357 in 1969 to 482,871 in 2009, and the total number of patents granted increased from 71,230 to 191,927 over the same time period. *U.S. Patent Statistics Chart, Calendar Years 1963-2009*, U.S. PATENT & TRADEMARK OFFICE, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm (last modified June 7, 2013). Moreover, as of 2002, the PTO received 375,000 patent applications each year and awarded 3,500 patents each week. Michael S. Malone, *The Smother of Invention*, FORBES (Jun. 24, 2002), http://www.forbes.com/asap/2002/0624/032.html.

3. "The number of patent infringement actions filed was 2,896 in 2007 . . . with a compound average growth rate of 5.8% since 1991." PRICEWATERHOUSECOOPERS, A CLOSER LOOK: 2008 PATENT LITIGATION STUDY: DAMAGES AWARDS, SUCCESS RATES AND TIME-TO-TRIAL (2008), *available at* http://www.pwc.com/en_US/us/forensic-services/assets/2008_patent_litigation_study.pdf [hereinafter 2008 PATENT LITIGATION STUDY].

4. For example, both reverse payments and SSO patent holdup cases have recently emerged as important and contentious issues implicating both antitrust and patent law. On reverse payments, see Fed. Trade Comm'n v. Actavis, Inc., 133 S. Ct. 2223 (2013); Schering-Plough Corp. v. Fed. Trade Comm'n, 402 F.3d 1056 (11th Cir. 2005); *In re* Tamoxifen Citrate Antitrust Litigation, 466 F.3d 187 (2d Cir. 2005); *In re* Cardizem CD Antitrust Litigation, 391 F.3d 812 (6th Cir. 2004). For patent holdup, see Rambus, Inc. v. Fed. Trade Comm'n, 522 F.3d 456 (D.C. Cir. 2003), *cert. denied*, No. 08-694, 2009 WL 425102 (Feb. 23, 2009); *In re* Negotiated Data Solutions LLC (N-Data), No. 051-0094 (F.T.C. Jan. 23, 2008).

5. *See* BRUCE H. KOBAYASHI & JOSHUA D. WRIGHT, *Intellectual Property and Standard Setting*, *in* ABA HANDBOOK ON THE ANTITRUST ASPECTS OF STANDARD SETTING (2010).

a significant problem posed by patent thickets, as each individual rights holder may "holdup" potential licensees by refusing to grant licenses unless and until he extracts a significant proportion of the value of the ultimate product. Because each individual rights holder has an incentive to maximize the value he realizes from licensing his rights, the possibility of royalty stacking emerges and may prevent the final product from being created at all.[6]

Firms facing the potential for holdup can be expected to make investments aimed at minimizing this potential. Numerous methods of solving the holdup problem exist, including using ex ante auctions to identify and alleviate holdup problems[7] as well as patent reform.[8] For example, in industries benefitting from technological standards, firms often create standard setting organizations (SSOs), which collectively negotiate with patent holders for coveted inclusion within the industry standard.[9] Rights

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6. *See* U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 57 (2007) [hereinafter IP/ANTITRUST REPORT], *available at* http://www.usdoj.gov/atr/public/hearings/ip/222655.pdf.

7. *See* Daniel Swanson & William Baumol, *Reasonable and Nondiscriminatory (FRAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. (2005); Joseph Farrell et al., *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST L.J. 603 (2007); Damien Geradin & Anne Layne-Farrar, *The Logic and Limits of Ex Ante Competition in a Standard Setting Environment*, 3 COMPETITION POL'Y INT'L 79 (2007); Damien Geradin & Miguel Rato, *Can Standard Setting Lead to Exploitative Abuse? A Dissonant View on Patent Holdup, Royalty Stacking, and the Meaning of FRAND*, 3 EUR. COMPETITION J. 101 (2007), *available at* http://www.ssrn.com/ abstract=946792; Damien Geradin, Anne Layne-Farrar & A. Jorge Padilla, The Ex Ante Auction Model for the Control of Market Power in Standard Setting Organizations (CEMFI, Working Paper No. 0703, 2007) *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=979393.

8. *See, e.g.*, Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007); Mark A. Lemley & Carl Shapiro, *Reply: Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 2163 (2007); Mark A. Lemley, *Ten Things to Do About Patent Holdup of Standards (And One Not To)*, 48 B.C. L. REV. 149 (2007); John M. Golden, *Patent Trolls and Patent Remedies*, 85 TEX. L. REV. 2111 (2007); *cf.*, J. Gregory Sidak, *Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro*, 92 MINN. L. REV. 713 (2008).

9. *See* KOBAYASHI & WRIGHT, *supra* note 5.

holders chosen for inclusion generally agree ex ante to license on fair, reasonable, and nondiscriminatory terms.[10]

Merger is another important, but thus far little-discussed, method by which firms can attempt to solve potential holdup problems. Merger internalizes the externalities that allow for patent holdup. By merging, two firms with relatively undeveloped patent portfolios may gain meaningfully increased bargaining power in licensing negotiations, which they may use to facilitate cross-licensing agreements, thereby decreasing transactions costs and reducing the risk of opportunism.[11] Courts, agencies, and economists have long recognized that cross licensing often yields significant efficiencies, including increases in output arising from the diminished marginal costs of production.[12]

As the Google-Motorola acquisition demonstrates, merger may provide an important alternative solution to holdup problems. Shortly after Google announced the merger, commentators speculated that the merger represented Google's attempt to increase its influence in the smartphone patent wars.[13] While

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10. *See* Anne Layne-Farrer, A. Jorge Padilla, & Richard Schmalensee, *Pricing Patents for Licensing in Standard Setting Organisations: Making Sense of FRAND Commitments* (Ctr. for Econ. Policy Research, Discussion Paper No. 0702, 2007), *available at* http://ssrn.com/abstract=996700.

11. IP/ANTITRUST REPORT, *supra* note 6, at 57 (discussing the benefits of cross-licensing). *See also* Klein, et al., *infra* note 57.

12. *See, e.g.*, U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY 28, 28-29 (1995), *available at* http://www.ftc.gov/bc/0558.pdf [hereinafter ANTITRUST-IP GUIDELINES]. *See also* IP/ANTITRUST REPORT, *supra* note 6, at 57, 59-61; Standard Oil Co. v. United States, 283 U.S. 163 (1931).

13. *See, e.g.*, Alex Wagner, *Google Buys Motorola: The Patent Wars Ramp Up*, HUFFINGTON POST (Aug. 15, 2011, 7:47 PM), http://www.huffingtonpost.com/2011/08/15/google-motorola-mobility_n_927670.html ("By gaining dominion over this trove of patents, Google will be better positioned to fend off lawsuits from competitors, including Apple and Microsoft. Both companies have launched several high-profile lawsuits over alleged copyright infringements by Google."); L. Gordon Crovitz, *Google, Motorola and the Patent Wars*, WALL ST. J. (Aug. 22, 2011), http://online.wsj.com/article/SB10001424053111903639404576518493092643006.html (quoting David Drummond, Google's chief lawyer) ("'Our competitors want to impose a 'tax' for these dubious patents that makes Android devices more expensive for consumers,' Mr. Drummond wrote. So Google responded to what he calls 'a hostile, organized campaign against Android by Microsoft, Oracle, Apple and other companies, waged through bogus patents,' by buying (presumably equally bogus) patents of its own."); Richard Windsor, *Google Buys Motorola Mobility—Market Reaction*, TELEGRAPH (Aug. 15, 2011),

Google's Android operating system has recently gained astounding popularity,[14] it is currently coming under fire from other high-tech firms, which claim that Android technology infringes upon their patents.[15] Given that a single smartphone may implicate as many as 250,000 patents, these claims may very well be true.[16] Accordingly, this ecosystem is incredibly susceptible to holdup problems, and a strong patent portfolio could help mitigate these problems. Yet because Google owns virtually no patents on smartphone technology, its ability to overcome this problem is currently limited. Acquiring Motorola may go a long way toward solving Google's holdup problem, since Motorola owns approximately 24,000 current and pending patents on smartphone technology.[17] This acquisition, then, may provide Google with leverage and ownership rights to protect the entire Android ecosystem that cannot be accomplished by alternative contractual structures. Such a merger—which increases output that cannot be achieved by alternative structures—appears to satisfy the basic definition of merger efficiency. Whether these benefits—which presumably would increase output—are *cognizable* efficiencies in merger analysis is thus an important question.

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http://www.telegraph.co.uk/technology/google/8702125/Google-buys-Motorola-Mobility-market-reaction.html.

14. Over 200 million Android devices have been activated worldwide. Eric Zeman, *Android Hits 200 Million Activations*, INFO. WEEK (Nov. 17, 2011), http://www.informationweek.com/mobility/smartphones/android-hits-200-million-activations/231903259.

15. Most litigation is brought against handset manufacturers running their devices on Android technology. *See generally* Timothy J. Maier, *The Smartphone Patent War, Part I*, MAIER & MAIER (Oct. 26, 2011, 4:03 PM), http://www.postgrant.com/2011/10/the-smartphone-patent-war-pt-1.html; Cecilia Kang, *Smartphone Patent Wars Heat Up: Microsoft v. Motorola*, WASH. POST (Aug. 22, 2011, 8:25 AM), http://www.washingtonpost.com/blogs/post-tech/post/smartphone-patent-wars-heat-up-microsoft-v-motorola/2011/08/21/gIQA29I7VJ_blog.html; Marissa Oberlander, Martin Stabe & Steve Bernard, *The Smartphone Patent Wars*, FINANCIAL TIMES (Oct. 17, 2011, 5:43 PM), http://www.ft.com/intl/cms/s/2/de24f970-f8d0-11e0-a5f7-00144feab49a.html - axzz1gwVPDNeL.

16. Richard Waters, *Patent Hunting Is Latest Game on Tech Bubble Circuit*, FINANCIAL TIMES (July 27, 2011, 7:37 PM), http://www.ft.com/intl/cms/s/0/16025f76-b868-11e0.

17. Erick Schonfeld, *Google Goes Soup-to-Nuts on Android with Bid for Motorola*, TECHCRUNCH (Aug. 15, 2011), http://techcrunch.com/2011/08/15/google-android-motorola/.

The U.S. Department of Justice (DOJ) and the Federal Trade Commission (FTC) have established the framework for analyzing whether purported efficiencies may be incorporated into the antitrust calculus in the Horizontal Merger Guidelines (Guidelines).[18] The Guidelines require defendants to demonstrate that any proffered efficiencies are (1) cognizable, (2) verifiable, (3) merger-specific, and (4) do not arise from anticompetitive conduct.[19] Because developing patent portfolios in order to establish cross-licenses allows for significant reductions in transactions costs and solves potentially serious holdup problems, it appears that such activity may satisfy the Guidelines' requirements.[20] This Article analyzes whether and when reducing the likelihood of patent holdup as the result of an acquisition of a patent portfolio should be understood as a cognizable merger efficiency under the Guidelines.[21]

Part I of this Article discusses the economics of patent portfolios and cross licensing, addressing both their procompetitive tendencies and their anticompetitive possibilities. Part II demonstrates that merging to build a patent portfolio, and thereby to induce cross licenses, is consistent with traditional economic rationales underlying the ownership-contract tradeoff. Part III examines the treatment of efficiencies within antitrust law, articulating and analyzing the Guidelines' framework for evaluating proffered efficiencies. Part IV then investigates whether building patent portfolios in order to facilitate cross-licensing agreements—and accordingly to increase output—satisfies the requirements of this framework. Part V concludes.

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18. U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES (2010), *available at* http://www.justice.gov/atr/public/guidelines/hmg-2010.pdf [hereinafter 2010 GUIDELINES].

19. *Id.* at § 10.

20. Some of these requirements are factual questions, answerable only by conducting a case-by-case analysis.

21. This Article considers scenarios in which the patent portfolio holder actively uses its patents, such as Google in its acquisition of Motorola. It does not explicitly consider patent assertion entities.

II. THE ECONOMICS OF PATENT PORTFOLIOS AND CROSS LICENSING

A. Patent Portfolios

A patent portfolio is a set of patents with a common owner. The patents within a portfolio generally exhibit a fairly high level of relatedness and are often focused within a certain technology.[22] "[P]atent portfolios are paradigmatically held by knowledgeable industry or technology players."[23] Firms specializing in patent portfolio building, however, have emerged as important actors within this ecosystem.[24] Indeed, constructing a useful patent portfolio is widely recognized as a valuable competitive strategy today,[25] as these portfolios offer benefits relating both to their (1) scale and (2) diversity features.[26]

The value of patent portfolios generally increases commensurately with the number of patents within the portfolio, up to an optimal size.[27] Well-developed patent portfolios realize this additional value because they function as a type of "super-patent." Larger portfolios encompass a greater number of technologies and may allow the owner to experience on a larger scale the benefits traditionally attributed to a single patent.[28] For example, a successful patent portfolio may allow the holder to significantly deter, or even completely avoid, costly litigation by encouraging settlements. Gideon Parchomovsky & R. Polk Wagner identify several reasons why patent portfolios incentivize settlements:

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22. Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 29 (2005).

23. *Id.* at 29-30.

24. *See, e.g.*, Eric W. Pfeiffer, *Mine Games*, FORBES (June 24, 2002), at 1, http://www.forbes.com/asap/2002/0624/060.html.

25. *See, e.g.*, Fang Pei Su et al., *Patent Priority Network: Linking Patent Portfolio to Strategic Goals*, 60 J. AM. SOC'Y INFO. SCI. & TECH. 2353 (2009) ("When applying for patents, companies should consider performing patent portfolios as a means of integrating their patent strategy to shape their overall business strategy. This is an important issue for any company in pursuit of enhanced operational performance because the whole *raison d'être* behind the application of patents is the anticipation of achieving maximum competitive advantage.").

26. Parchomovsky & Wagner, *supra* note 22, at 31.

27. *Id.*

28. *Id.*

> First, in cases where the portfolio holder believes that another has infringed, the broader total scope of protection created by the portfolio will only increase the chances that infringement will ultimately be proven, thus encouraging settlement. Second, where the portfolio holder is the potential infringer, the chances that the holder will have a cognizable counterclaim based on one or more of its own patents is much higher, especially if the patent portfolio in question covers a significant portion of the technological landscape—again, encouraging settlement rather than litigation. Third, where there are potential opposing claims of infringement—that is, where both a portfolio holder and an individual patentee have counterclaims—the existence of a patent portfolio creates a potential imbalance in both the stakes of the litigation and the likelihood of success, which again encourages settlement rather than litigation. And fourth, where multiple portfolio holders operate in a particular field, the greatly increased stakes—and increased chances that both parties would be found liable—will diminish the appeal of litigation as a method of dispute resolution.[29]

Accordingly, under several scenarios, portfolios may serve useful functions both offensively and defensively, by establishing a cohesive set of patents that allows the holder to gain significant leverage.

The increased leverage that a well-crafted patent portfolio offers may further reduce transactions costs by diversifying the rights of the holder.[30] While patent portfolios are generally comprised of units more similar to one another than would be observed in other settings, such as stock portfolios, they retain an inherent diversity by virtue of their aggregating numerous "related-but-distinct" patents.[31] This diversity allows firms to reduce the risks and uncertainty inherent in innovative industries—and within the patent system itself.[32] By building a patent of portfolios, firms

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29. Parchomovsky & Wagner, *supra* note 22, at 34-35.

30. Peter C. Grindley & David J. Teece, *Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics*, 39 CAL. MGMT. REV. 8, 9 (1997) ("The portfolio approach reduces transactions costs and allows licensees freedom to design and manufacture without infringement.").

31. Parchomovsky & Wagner, *supra* note 22, at 32, 37-38.

32. *Id.* at 39-40.

can begin to account for the uncertainty associated with individual patents and construct a portfolio that is a more solid entity than any individual patent standing alone. While diversification within patent portfolios may not alleviate risk and uncertainty to the extent that is possible with stock portfolios, it may still meaningfully diminish these concerns. Portfolios increase the patent pool from which firms may gain leverage, making firms less susceptible to one or a handful of questionable patents and strengthening their competitive posture.

This diversification function may be especially beneficial in light of the notoriously probabilistic nature of contemporary patents.[33] As several scholars have noted, a patent grants its holder only "a right to *try* to exclude others;"[34] questions regarding the patents' scope, validity, and ability to withstand litigation are built into the patent system and are resolved only after litigation has concluded. Recent empirical studies have consistently revealed that patent holders prevail in less than 50% of litigated cases.[35] Indeed, one recent Pricewaterhouse Coopers report analyzed 1,282 final decisions issued at the (1) summary judgment and (2) trial stages between 1995 and 2007. This report found that "[p]atent holders [were] successful 37% of the time overall, with a 19% win rate in summary judgments and 57% win rate at trial."[36] This data indicates that even when patent holders do ultimately win at trial, it is not at all clear at early litigation stages that they will do so.[37] This seemingly inherent uncertainty may further aggravate the holdup problem as it necessarily allows parties' evaluations of the patents

33. *See* Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19 J. ECON. PERSPECTIVES 75, 75-76 (2005).

34. *Id.* at 95.

35. *E.g.*, 2008 PATENT LITIGATION STUDY, *supra* note 3, at 8-9; Jean O. Lanjouw & Mark Schankerman, *Protecting Intellectual Property Rights: Are Small Firms Handicapped?*, 47 J.L. & Econ. 45, 59 (2004) (finding that plaintiff win rates for infringement suits filed between 1978 and 1992 is about 50%); Glynn S. Lunney, Jr., *Patent Law, the Federal Circuit, and the Supreme Court: A Quiet Revolution*, 11 SUP. CT. ECON. REV. 1, 11 (2004) (conducting an empirical investigation of all appellate decisions in patent infringement cases between 1944 and 2001, and finding that patent holder overall success rates is 28.4% after the creation of the Federal Circuit).

36. 2008 PATENT LITIGATION STUDY, *supra* note 3, at 8.

37. This uncertainty is typical of litigation, as litigated cases are necessarily those that will be the closest calls. *See* George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1, 1-2 (1984).

at issue to be widely divergent. The diversification function of patent portfolios may accordingly serve an important clarification function, by aggregating and smoothing over this uncertainty.

Additionally, patent portfolios increase the likelihood that a given firm will own patents relevant to—and therefore valid infringement claims against—another firm's products. Indeed, scholars have found that firms holding patent portfolios that are comparatively larger than those of firms with whom they are likely to have disputes are significantly less likely to utilize litigation as a competitive tactic[38]—strongly suggesting that portfolios do play an important role in both reducing litigation and transactions costs. This diminished use of courts indicates that firms with well-conceived patent portfolios are able to reach mutually agreeable contracts more expediently and less expensively than are firms without such portfolios.

B. Cross Licensing

Given the prevalence of patent ownership and the interrelatedness and overlap observed within many contemporary high-tech industries, cross licensing has proliferated as a competitive strategy. Cross-licensing agreements are often bilateral and are created with the intent to prevent infringement actions.[39] Additionally, such agreements are generally nonexclusive, include an established termination date, and grant the licensee the right to produce the patented technology in a limited field.[40]

Agencies[41] and courts[42] have long recognized the significant procompetitive benefits deriving from cross licenses. Specifically, in their analyses agencies and courts have focused upon the diminished transactions costs resulting from the elimination of the need to license on a patent-by-patent basis, the

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38. Jean O. Lanjouw & Mark Schankerman, *Protecting Intellectual Property Rights: Are Small Firms Handicapped?*, 47 J.L. & ECON. 45, 48 (2004).

39. IP/ANTITRUST REPORT, *supra* note 6, at 59.

40. *Id.*

41. *See, e.g.*, ANTITRUST-IP GUIDELINES, *supra* note 12, at 28-29; IP/ANTITRUST REPORT, *supra* note 6, at 57, 59-61.

42. *See, e.g.*, Richard J. Gilbert, *Antitrust for Patent Pools: A Century of Policy Evolution*, 2004 STAN. TECH. L. REV. 3 (2004) (describing important cases in which courts have addressed cross-licensing agreements and detailing the procompetitive benefits that may derive from such arrangements).

reduction in litigation costs, and the decreased uncertainty.[43] Indeed, the agencies have remarked that this increased navigability of the patent field is the most significant possible efficiency arising from cross licensing, as it reduces the risk of litigation.[44] Litigation and infringement actions pose serious threats to firms producing patented technologies, as they entail the attendant possibility of a permanent injunction. This injunctive threat, which portends the termination of the enjoined firm's production, is particularly pernicious as it alters the balance of power between negotiating firms, strongly tipping the scale in favor of the patent holder and accordingly exacerbating the likelihood of holdup.[45]

The Supreme Court's jurisprudence further recognizes the significant procompetitive aspects of cross licenses. As far back as *Standard Oil Co. v. United States*,[46] the Court has acknowledged both the complications that overlapping patents introduce into firms' operating calculus (by creating uncertainty as to whether infringement is in fact occurring), and the commensurate benefits cross licenses can offer (by reducing litigation costs and promoting further technological developments). *Standard Oil* addressed concerns the DOJ raised over cross-licensing agreements between holders of various patents covering developing methods of 'cracking' crude oil to yield larger quantities of gasoline.[47]

The Court noted that various firms invested heavily in their own commercial processes for cracking, because no singular, fundamental patent covered the process.[48] This simultaneous development by independent actors naturally fostered conflict over

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43. *See* ANTITRUST-IP GUIDELINES, *supra* note 12, at 28; IP/ANTITRUST REPORT, *supra* note 6, at 57 ("[C]ross licenses . . . can help solve the problems created by . . . overlapping patent rights, or patent thicket, by reducing transactions costs for licensees.").

44. *See* IP/ANTITRUST REPORT, *supra* note 6, at 60.

45. *See id. See also* Lemley & Shapiro, *supra* note 8, at 1993 ("[T]he threat of an injunction can dramatically influence the negotiations between a single patent holder and an alleged infringer, especially if the patented technology covers one component of a complex product . . . . [T]he threat that the patent holder will obtain an injunction causes the negotiated royalty rate to exceed the true economic contribution of the patent holder, especially if the value of the patented technology is small relative to the value created by the product as a whole . . . . [This] threat is especially troublesome in the case of weak patents, i.e., patents that may well be found invalid if actually litigated.").

46. Standard Oil Co. v. United States, 283 U.S. 163 (1931).

47. *Id.* at 167-68.

48. *Id.* at 167.

possible infringement and ultimately resulted in a number of cross-licensing contracts, permitting each firm to continue production.[49] The parties defended on the grounds that their "sole object was to avoid litigation and losses incident to conflicting patents."[50] Reasoning that these contracts allowed competition to flourish between the firms, the Court found that the cross licenses raised no anticompetitive concerns.[51] Moreover, the Court noted that such agreements are "frequently necessary if technical advancement is not to be blocked by threatened litigation."[52]

While cross-licensing agreements are frequently procompetitive,[53] they may raise anticompetitive concerns under certain circumstances.[54] These anticompetitive possibilities generally derive not from the existence of the cross license itself, but from additional, restrictive terms that may be included within the licensing agreement. For instance, antitrust concerns may arise if conditions within the licenses set prices or restrain output or establish exclusivity between the parties.[55] However, such conditions seem to be largely absent in observed cross licenses, allowing the procompetitive aspects of these arrangements to prevail.[56]

III. REDUCING TRANSACTIONS COSTS AS MOTIVATION FOR MERGER

Theories addressing the rationales underlying firms' merger decisions are well developed within economic literature.[57] At its most fundamental level, this decision entails an analysis of the

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49. *Id.* at 167-68.

50. *Id.* at 168.

51. *Id.* at 175-76, 183.

52. *Id.* at 171.

53. ANTIRUST-IP GUIDELINES, *supra* note 12, § 5.5.

54. *Id. See also* IP/ANTITRUST REPORT, *supra* note 6, at 61-62.

55. ANTIRUST-IP GUIDELINES, *supra* note 12, § 5.5; IP/ANTITRUST REPORT, *supra* note 6, at 61-62.

56. IP/ ANTITRUST REPORT, *supra* note 6, at 62 (noting that, despite concerns regarding the possibility of restrictive terms, "panelists . . . said, companies engaged in portfolio cross licensing are generally willing to license their portfolios to all interested parties.").

57. Ronald Coase, *The Nature of the Firm*, 4 ECONOMICA 386 (1937); OLIVER E. WILLIAMSON, MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS (1975); Benjamin Klein, Robert G. Crawford & Armen A. Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J.L. & ECON. 927 (1978).

tradeoffs between contract and ownership.[58] Firms necessarily have scarce resources, and each decision as to whether the firm should perform an activity itself, or pay another to do so, asks which option is more costly.[59] Many of the benefits firms realize from ownership may be attained via contract; however, this proposition says nothing about which option will be most cost-effective. Ownership allows firms to align incentives and avoid superfluous costs, such as double marginalization as well as agency and monitoring costs, and so is often a driving force behind the decision to merge. Contracting, on the other hand, offers its own potential cost reductions. For example, an outside firm may have a significant comparative advantage for a given task. The costs of contracting, however, may still be prohibitive, and the risk of ex post holdup may be significant. Accordingly, a serious analysis of the costs and benefits of both ownership and contract may importantly inform a firm's decision.

The analysis of these tradeoffs is just as important in the New Economy as in traditional industries.[60] In fact, the tradeoff analysis may become even more complicated, and commensurately important to conduct, in the New Economy, given the increasingly prominent role patents play. Patent proliferation has exacerbated transactions costs, as well as the risk of patent holdup, and accordingly provides important incentives for mergers in high-tech industries. Indeed, the exponential growth in the influence of patents implicates firms' competitive strategies in important ways. The emergence of the New Economy has heralded a new economic paradigm, within which high-technology industries are the primary sources of value and forces of change. These industries encapsulate nearly perfectly the type of competition that Joseph Schumpeter described as defining capitalist societies; that is, competition that "incessantly revolutionizes the economic structure *from within*, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about

58. Coase, *supra* note 57, at 390-92.

59. *Id.*

60. Richard A. Posner, Antitrust in the New Economy 2 (Univ. of Chi. Law Sch., John M. Olin Law & Econ. Working Paper No. 106, 2000), *available at* http://www.law.uchicago.edu/files/files/106.Posner.pdf (defining the "New Economy" as the rise of three industries: computer software manufacturing, Internet-based business, and communication services).

capitalism."[61] Creative destruction, he proffered, forces firms in dynamic and innovative industries to constantly discover new technologies and markets—necessarily yielding "leapfrog" developments—in a constant struggle to retain relevance.[62] Patents play a significant role in this competitive landscape, as patents both allow firms to (perhaps briefly) internalize the benefits of their unique and useful innovations, by forcing rivals who seek to implement these innovations to compensate the patent holder, and foster incentives for firms to design around existing patents—thereby incentivizing further consumer welfare enhancing developments.[63]

As patents have proliferated within high-tech industries, the rights necessary to create a given product have become increasingly spread across numerous rights holders—ingraining an inherent complexity within the ecosystem by rendering the landscape difficult to navigate and by ushering transactions costs and patent holdup concerns to a place of prominence.[64] These concerns are characteristic anticommons problems.[65] Transactions costs are the costs of discerning quality and negotiating contracts.[66] One particular transactions cost has come to be known as the "patent holdup problem."

Patent holdup may arise after firms have made relationship-specific investments, allowing patent holders to "'hold up' users in a variety of ways that result in more favorable licensing terms than contracted for ex-ante."[67] Such hold up may prove particularly pernicious when rights are fragmented among owners, as this fragmentation increases production costs both by (1) raising the

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61. JOSEPH SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY 82-83 (1975).

62. *Id.*

63. *See* Richard C. Levin, Richard R. Nelson, Alvin K. Klevorick & Sidney G. Winter, *Appropriating the Returns from Industrial Research and Development*, 3 BROOKINGS PAPERS ON ECON. ACTIVITY 783, 783 (1987) ("The benefits . . . from an innovation . . . are increased if competitors can imitate and improve upon the innovation to ensure its availability on favorable terms. Patent law seeks to resolve this tension . . . .").

64. IP/ANTITRUST REPORT, *supra* note 6, at 57.

65. Michael A. Heller, *The Tragedy of the Anticommons*, 111 HARV. L. REV. 621, 673-77 (1998).

66. Armen A. Alchian & Susan Woodward, *Reflections on the Theory of the Firm*, 143 J. INSTITUTIONAL & THEORETICAL ECON. 110, 110 (1987).

67. Bruce H. Kobayashi & Joshua D. Wright, *Federalism, Substantive Preemption, and Limits on Antitrust: An Application to Patent Holdup*, 5 J. COMPETITION L. & ECON. 496, 470 (2009).

costs of transacting and negotiating with several rights holders for licenses and (2) by increasing total royalty payments.[68] Royalty payments are often increased, or "stacked," when rights are fragmented because each individual rights holder has an incentive to extract from the licensee as much of the value of the final product as possible—without significant concern for other licensors.[69] Royalty stacking may yield concrete consumer welfare losses, as it can ultimately make production unprofitable and slow the pace of innovation.[70] Licensees must then expend scarce resources on efforts to overcome the holdup problem.

Merger is consistent with the larger economic principle of using ownership to solve the holdup problem.[71] Holdup is inherently a problem of incomplete contracting and is particularly acute when one party makes significant relationship-specific investments before the other party must perform.[72] The non-simultaneity of performance creates an ex post incentive for the later-performing party to act opportunistically and extract more rents from the first-performer than agreed to ex ante.[73] Because of the contractual nature of the problem, ownership offers one potential solution to the holdup problem. By internalizing each stage of performance, the firm may avoid these costly ex post incentives. In the patent context, this means that firms whose final products incorporate patented technologies may benefit more from owning the patents than from contracting for usage rights. However, owning all relevant patents is generally wildly infeasible—given the sheer number of patents covering any given technology as well as the extensive costs of contracting for these rights with each rights holder.[74]

Merging to build a patent portfolio, in order to facilitate cross licensing, then, represents one mechanism for solving the holdup problem. This hybrid strategy utilizes both the contract and ownership options to achieve a more optimal result than available

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68. IP/ANTITRUST REPORT, *supra* note 6, at 57.

69. *Id.*

70. *Id.* at 61.

71. Alchian & Woodward, *supra* note 66, at 118; Coase, *supra* note 57; Kobayashi & Wright, *supra* note 67; KOBAYASHI & WRIGHT, *supra* note 5.

72. KOBAYASHI & WRIGHT, *supra* note 67.

73. *Id.*

74. *See generally* IP/ANTITRUST REPORT, *supra* note 6, ch. 3 (discussing how rights to technologies implicated in high-tech products are generally highly fragmented).

from either independently. The merger aspects yield important efficiencies, including: (1) reducing transactions costs (and eliminating some entirely); and (2) creating meaningful diversity within the relevant patent portfolio, which, as described above, may strengthen its competitive posture. Transactions costs are diminished both between the merging firms and as a result of the diversified patent portfolio, which, because it smoothes over uncertainties, moves the portfolio owner's and the potential licensees' valuations of the portfolio into closer alignment. As the parties now have more similar initial perceptions of the portfolio's worth, the discrepancy they must overcome is now smaller, meaning that each firm is fighting over fewer rents, and increasing the likelihood that they may reach an expedient agreement. The merger also adds to the firm's patent arsenal, allowing it more realistically to threaten litigation against firms that are infringing its patents.

Accordingly, the merger places the firm in a better situation to enter into beneficial cross-licensing agreements. This is a subsequent, contractual function the merger allows. The consolidation into a singular patent allows the owner and potential licensees to avoid patent-by-patent negotiations; if each has substantially similar patent portfolios, in terms of overall worth, then reaching a final agreement may be much simpler. Each could agree to cross license use of all potentially relevant patents, rather than haggling over which individual patents to include and under what terms to do so. Merging to bolster one's patent portfolio, therefore, seems to be a potentially enticing prospect.

IV. ANTITRUST AND MERGER EFFICIENCIES: THE HORIZONTAL MERGER GUIDELINES

A. History and Development

Efficiencies have a complex history within antitrust law. Although they have risen to become an important aspect of contemporary agency (and, to a lesser extent, of court) analysis, they were initially rejected from inclusion within the antitrust framework. The Supreme Court's early treatment of proffered efficiencies was, in fact, quite dismissive; for instance, in *Brown Shoe Co. v. United States*, the Court commented that "Congress appreciated that occasional higher costs and prices might result from the maintenance of fragmented industries and markets. It

resolved these competing considerations in favor of decentralization."[75]

Efficiencies slowly began to gain traction as a desirable concept with the release of the 1968 Horizontal Merger Guidelines.[76] Over the next few several decades, efficiencies slowly began to receive more favorable treatment within the Guidelines and by the Court, as each more rigorously incorporated economic learning into their analyses. In 1997, the agencies reversed their stated policy regarding efficiencies, overhauling this section of the Guidelines to recognize that efficiencies deriving from mergers may have such significant procompetitive effects as to negate any anticompetitive effects.[77] This and other changes reflect the contemporary economic wisdom that efficiencies may yield important consumer welfare gains. Today, the agencies and courts have developed a comprehensive framework for evaluating and accepting a wide range of proffered efficiencies.

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75. 370 U.S. 294, 344 (1962). *See also* United States v. Phila. Nat. Bank 374 U.S. 321, 371 (1963) (finding anticompetitive mergers are not saved "on some ultimate reckoning of social and economic debits and credits.").

76. *See* William J. Kolasky & Andrew R. Dick, *The Merger Guidelines and the Integration of Efficiencies into Antitrust Review of Horizontal Mergers*, 71 ANTITRUST L.J. 207, 212-13 (2003) (introducing). These Guidelines introduced the first possibility of an efficiency justification, but the bounds of this allowance were strictly delineated and the justification accordingly narrow). *See also* U.S. DEP'T OF JUSTICE, MERGER GUIDELINES 8 (1968), *available at* http://www.justice.gov/atr/hmerger/11247.pdf ("Unless there are exceptional circumstances, the Department will not accept [efficiencies] as a justification for an acquisition normally subject to challenge . . . ."). In fact, the DOJ maintained that efficiencies were unlikely to play a significant (if any) role in the competitive effects calculus, as they would most often either be achievable via internal firm expansion or be too difficult to sufficiently verify and quantify. *Id*.

77. U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 4 (as amended Apr. 8, 1997) [hereinafter 1997 GUIDELINES].

B. Recent Cases and the 2006 Commentary[78]

1. Recent Cases

Section 7 of the Clayton Act renders illegal any merger or acquisition that would substantially lessen competition in any line of commerce.[79] Contemporary Supreme Court jurisprudence is consistent with the notion that if it were to accept a Section 7 efficiencies case today, it would consider efficiencies an important aspect of the analysis.[80] It appears the Supreme Court has not yet explicitly endorsed the efficiencies framework only because it has not heard such a case in decades. Additionally, lower courts have virtually universally acceptance the efficiency defense.

For example, *Broadcast Media, Inc. v. Columbia Broadcasting Systems, Inc.* (*BMI*)[81]—widely recognized as a seminal case in antitrust law—has important implications for efficiency analysis. In *BMI*, CBS sued the American Society of Composers, Authors and Publishers (ASCAP) for violating Section 1 of the Sherman Act by offering blanket licenses to copyrighted music.[82] CBS alleged this practice amounted to per se illegal price fixing; the Court, however, refused to apply the per se rule to the conduct at issue.[83] Instead, it applied the rule of reason, noting that the cooperation yielded an entirely new product, and focused its analysis upon the virtually insurmountable transactions costs within the industry:

> Individual sales transactions in this industry are quite expensive, as would be individual monitoring and enforcement, especially in light of the resources of single

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78. U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, COMMENTARY ON THE HORIZONTAL MERGER GUIDELINES (2006), *available at* http://www.justice.gov/atr/public/guidelines/215247.pdf [hereinafter 2006 COMMENTARY].

79. Clayton Act § 7, 15 U.S.C. § 18 (2013).

80. *See* Fed. Trade Comm'n v. H.J. Heinz, Co., 246 F.3d 708, 720-21 (D.C. Cir. 2001) (arguing that although the Supreme Court had not sanctioned efficiency analysis in Section 7 cases, both lower court trends and high market concentrations warranted efficiency analysis). *See also* Fed. Trade Comm'n v. Procter & Gamble Co., 386 U.S. 568, 580 (1967) ("Possible economies cannot be used as a defense to illegality."). But the Supreme Court has not accepted such a case in decades.

81. 441 U.S. 1 (1979).

82. *Id.* at 4.

83. *Id.* at 6, 8-10, 24.

> composers. Indeed, as both the Court of Appeals and CBS recognize, the costs are prohibitive for licenses with individual radio stations, nightclubs, and restaurants, and it was in that milieu that the blanket license arose.
>
> A middleman with a blanket license was an obvious necessity if the thousands of individual negotiations, a virtual impossibility, were to be avoided.[84]

Accordingly, the Court recognized that significant efficiencies may arise where transactions costs are diminished.[85] It considered the unique aspects of the industry in question that allowed transactions costs to be so pervasive, and, although the court did not precisely quantify the cost reductions the blanket licenses offered, incorporated these reductions into its determination of the competitive effects of the analysis.[86] Overall, the Court found the reductions in transactions costs were significant benefits of the licenses that needed to be weighed against their anticompetitive effects.[87]

In the first merger case arising under the overhauled 1997 Guidelines, *Federal Trade Commission v. Staples, Inc.*,[88] the D.C. district court wrestled with the proper treatment of proffered efficiency justifications. Without reaching a final determination of whether efficiencies could be a viable defense, but assuming for argument's sake that they could, the court found that the defendants' alleged efficiencies failed to rebut the merger's anticompetitive effects.[89] The merger under investigation was between Staples and Office Depot, the first and second largest office superstore chains in the United States.[90] After finding the merger was likely to substantially lessen competition, the court turned to consideration of efficiencies.[91] Overall, the court found most of the defendants' proffered efficiencies were not cognizable. Some efficiencies were dismissed because they were not adequately verified; for example, the defendants did not support

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84. *Id.* at 20.

85. *Id.*

86. *Id.*

87. *Id.* at 25.

88. Fed. Trade Comm'n v. Staples, Inc., 970 F. Supp. 1066 (D.D.C. 1997).

89. *Id.* at 1089.

90. *Id.* at 1069.

91. *Id.* at 1088-90.

their alleged "Base Case" savings with adequate documentation nor were they able to articulate the methods used to calculate some of these savings.[92] Other arguments were rejected because the defendants failed to distinguish the savings that were merger specific from those that were unrelated to the merger.[93] For instance, in calculating the likely cost savings of the merged firm, Staples and Office Depot compared Staples' past savings rate—not its projected future savings rate as a stand-alone company—to the combined firm's projected savings rate.[94] The court found this calculation overestimated the likely merger specific cost savings, by failing to discount properly for cost savings Staples would achieve as a separate entity.[95] While the court did not recognize any cognizable efficiencies in this case, it nevertheless conducted a rigorous analysis of the proffered efficiency justifications, thereby indicating efficiencies had become an important aspect of the competitive effects analysis.[96]

More recently, agencies have considered and found a more expansive range of efficiencies to be cognizable. For instance, in the recent Sirius-XM case, the DOJ found that the merger was likely "to allow the parties to consolidate development, production and distribution efforts on a single line of radios and thereby eliminate duplicative costs and realize economies of scale."[97] Courts, however, continue to express serious skepticism with respect to efficiency justifications. In *Federal Trade Commission v. CCC Holdings, Inc.*,[98] for example, the court found the defendants' assertion that the merged firm would yield increased innovation too speculative to count as a cognizable merger efficiency.

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92. *Id.* at 1089.

93. *Id.* at 1089-89.

94. *Id.*

95. *Id.*

96. *Id.* at 1088-90.

97. *Statement of the Department of Justice Antitrust Division on its Decision to Close Its Investigation of XM Satellite Radio Holding Inc.'s Merger with Sirius Satellite Radio Inc.*, DEP'T OF JUSTICE (Mar. 24, 2008), http://www.justice.gov/opa/pr/2008/March/08_at_226.html.

98. 605 F. Supp. 2d 26, 75 (D.D.C. 2009) (holding that innovation claims were "too speculative to overcome the strong presumption of anticompetitive effects.").

2. 2006 Commentary[99]

The FTC's and DOJ's 2006 Commentary on the Horizontal Merger Guidelines (2006 Commentary) further develops the characteristics that render proffered efficiencies likely substantially to alter the competitive effects analysis. This Commentary begins by noting that "[e]fficiencies are a significant factor in the Agencies' decisions not to challenge some mergers that otherwise are likely to have, at most, only slightly anticompetitive effects."[100] It then elaborates upon the requirements set forth within the 1997 Guidelines,[101] delving into more detail on the circumstances under which these conditions will or will not be met. For example, the Commentary explains that agencies look for "documentation that is logical, coherent, and grounded on facts and business experience" to support proffered efficiencies.[102] Moreover, the agencies value "information on the likelihood, magnitude, and timing of claimed efficiencies."[103] Under the 1997 Guidelines, efficiencies must be (1) cognizable, (2) merger specific, (3) verifiable and (4) must not arise from anticompetitive reductions in output or service.[104]

Merger specific efficiencies in the 1997 Guidelines are "those efficiencies likely to be accomplished with the proposed merger and unlikely to be accomplished in the absence of either the proposed merger or another means having comparable anticompetitive effects."[105] Further, "[o]nly alternatives that are practical in the business situation faced by the merging firms will be considered in making this determination; the Agency will not insist upon a less restrictive alternative that is merely theoretical."[106] As the 2006 Commentary explains,

> That an efficiency theoretically could be achieved without a merger—for example, through a joint venture or contract—does not disqualify it from consideration in the analysis. Many joint venture agreements or contracts may not be

99. 2006 COMMENTARY, *supra* note 78.
100. 2006 COMMENTARY, *supra* note 78, at 55.
101. 1997 GUIDELINES, *supra* note 77, § 4.
102. 2006 COMMENTARY, *supra* note 78, at 51.
103. *Id.*
104. 1997 GUIDELINES, *supra* note 77, § 4.
105. *Id.* at 30.
106. *Id.* at 31.

> practically feasible or may impose substantial transaction costs (including monitoring costs). In their assessment of proffered efficiency claims, the Agencies accord appropriate weight to evidence that alternatives to the merger are likely to be impractical or relatively costly.[107]

This elaboration recognizes the inherent tradeoffs between ownership and contract, and that forcing potential merger partners to choose the more expensive of these two options may be detrimental to consumer welfare. Accordingly, the Agencies analyze whether other means of realizing purported efficiencies are available with an eye toward the costs these options entail.

Additionally, the Commentary offers examples to illustrate the kinds of efficiencies the agencies consider merger specific. It notes that if each firm separately operates a facility with excess capacity, and the merger would lead the firms to combine the production at one facility with lower costs—and if this is the only practical mechanism for achieving these diminished costs—then the cost reduction is merger specific.[108] To the contrary, if a merger would simply result in each firm adopting the other's "best practices" or updating equipment, no merger specific efficiencies are present (unless, perhaps, intellectual property protects a "best practice").[109] The Commentary further addresses potential efficiencies deriving from the combination of sales and realization of economies of scale. The Commentary expresses skepticism as to whether such efficiencies are indeed merger specific, noting that such economies might be achieved via internal growth. It further explains, however, that "[i]f a merger can be expected significantly to accelerate the achievement of economies of scale due to increased sales as compared to internal growth, the Agencies credit the merger with merger-specific acceleration of the cost reduction."[110]

The next requirement the Commentary discusses is verifiability. The agencies will not consider claimed efficiencies that are vague, speculative or unquantifiable, as such efficiencies do not lend themselves to measurement by reasonable means. "The verification process usually includes, among other things, an

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107. 2006 COMMENTARY, *supra* note 78, at 50.

108. *See id.* at 50 ("[I]f a merged firm would combine the production from two or more underutilized facilities . . . this cost reduction is merger-specific.").

109. 2006 COMMENTARY, *supra* note 78, at 50-51.

110. *Id.* at 51.

assessment of the parties' analytical methods, including the accuracy of their data collection and measurement, an evaluation of the reasonableness of assumptions in the analysis, and scrutiny into how the parties' conclusions stand up to modifications in any assumptions."[111] To verify proffered cost savings, the agencies review internal documents, data, and statements by company personnel, as well as competitors' assessments of the likelihood of realizing such savings. The Commentary encourages parties to utilize the "best information available to substantiate their efficiency claims," suggesting that firms conduct internal investigations and analyses using current or recently recorded costs and other objective data.[112]

Moreover, the Commentary explains that agencies may be able to verify and accept only some efficiencies claims, or certain aspects of some claims, while rejecting others; verification is accordingly not an all-or-nothing proposition. The Commentary further expresses a cautious understanding that efficiency evaluations necessarily rely upon expectations about the future, which are inherently uncertain, noting that neither minor discrepancies nor the fact that comparable efficiencies have never before been realized will automatically condemn a potential efficiency. Rather, the agencies will attempt to accordingly reduce the magnitude of the proffered efficiencies. However, the agencies find that "[t]he best way to substantiate an efficiency claim is to demonstrate that similar efficiencies were achieved in the recent past from similar actions."[113]

Finally, the 1997 Guidelines require that, to be cognizable, efficiencies not derive from anticompetitive reductions in output or service. The Commentary has very little to say regarding this requirement, but agencies seem to be most wary of such reductions when they would be a direct effect of the proffered efficiency. For example, when firms argue that the merger will allow them to economize on research and development (R&D) costs, these savings often arise from reductions in spending on R&D.[114] While such mergers may allow the two firms to innovate in a more streamlined fashion, the agencies worry about the possible reduction in competition along this dimension and the fact

111. *Id.* at 52.
112. *Id.* at 54.
113. *Id.* at 53.
114. *Id.* at 51-52.

that the combined firm might spend less on R&D means less innovation will occur.[115]

C. The 2010 Horizontal Merger Guidelines[116]

The 2010 Guidelines introduce the efficiencies section with the recognition that "a primary benefit of mergers to the economy is their potential to generate significant efficiencies and thus enhance the merged firm's ability and incentive to compete, which may result in lower prices, improved quality, enhanced service, or new products."[117] They retain the general framework that efficiencies must be cognizable, merger specific, verifiable, and not derivative of anticompetitive reductions in output or service. Yet the 2010 Guidelines still reflect a somewhat skeptical perception of efficiencies. For example, they add the explicit claim that "[p]rojections of efficiencies may be viewed with skepticism, particularly when generated outside of the usual business planning process."[118] Indeed, commentators have noted the disfavored treatment that efficiencies continue to receive within the Guidelines, questioning its persistence in light of current economic

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115. From the Commentary's discussion, it appears that parties could frame a cognizable efficiency argument around R&D, but it would need to focus upon eliminating redundancies in spending, and emphasize that overall R&D spending would not decrease. The agencies also reject efficiencies when, for example, they result from the elimination of sales staffs, as they perceive the result of this elimination may ultimately be to decrease output.

In addition to these core requirements, the Commentary discusses the agencies' treatment of efficiencies purportedly deriving from fixed-cost savings. Because the agencies focus upon short run effects in their efficiencies analyses, they are wary of accepting the proposition that fixed-cost savings will yield benefits to consumers. Economic theory anticipates consumer welfare enhancements when a firm's marginal costs are reduced, as such reductions often lead to price decreases and observable consumer benefits. Fixed-cost reductions, however, may not trigger immediate price changes; accordingly, consumer welfare effects play out over the long run—which is not the agencies' preferred metric of analysis. Yet, the Commentary notes that the agencies will nonetheless "consider merger-specific, cognizable reductions in fixed costs . . . because consumers may benefit from them over the longer term even if not immediately." 2006 COMMENTARY, *supra* note 78, at 58.

116. 2010 GUIDELINES, *supra* note 18.

117. *Id.* at § 10.

118. *Id.*

teachings demonstrating the significant and likely consumer welfare benefits arising from merger efficiencies.[119]

Importantly, the 2010 Guidelines add a concluding paragraph discussing the evaluation of a merger's effects upon innovation:

> [T]he Agencies consider the ability of the merged firm to conduct research or development more effectively. Such efficiencies may spur innovation but not affect short-term pricing. The Agencies also consider the ability of the merged firm to appropriate a greater fraction of the benefits resulting from its innovations. Licensing and intellectual property conditions may be important to this enquiry, as they affect the ability of a firm to appropriate the benefits of its innovation. Research and development cost savings may be substantial and yet not be cognizable efficiencies because they are difficult to verify or result from anticompetitive reductions in innovative activities.[120]

Accordingly, the Guidelines seem to recognize that such mergers may yield dynamic efficiencies, by stimulating innovation, yet may discount these benefits because they do not affect short-term prices or outputs—which is the metric upon which the agencies focus their efficiencies analyses.[121] Additionally, the 2010 Guidelines seem hesitant to accept R&D savings as cognizable, continuing to

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119. *See, e.g.*, Judd E. Stone & Joshua D. Wright, *The Sound of One Hand Clapping: The 2010 Merger Guidelines and the Challenge of Judicial Adoption*, 39 REV. INDUS. ORG. 145, 152 (2011) ("The 2010 Guidelines in no way diminish the 1997 Revisions' treatment of efficiencies; neither, however, do they update the Guideline's treatment of efficiencies in light of these new tests for anticompetitive effects, so as to dispel the specter of *Philadelphia National Bank*. The 2010 Guidelines thereby appear to implement 2010 economic knowledge on unilateral effects awkwardly paired with 1997 economic knowledge of efficiencies."); Daniel A. Crane, *Rethinking Merger Efficiencies*, 110 MICH. L. REV. 347, 355-58 (2011) ("The bias in favor of harms over efficiencies is reflected in the text of the Horizontal Merger Guidelines [] . . . [but] [t]he asymmetrical treatment . . . is not merely a function of parsing the Guidelines' text. Despite some greater sympathy toward efficiencies in recent years, practitioners report that the agencies usually react with coolness to efficiencies arguments.").

120. 2010 GUIDELINES, *supra* note 18, § 10.

121. *Id.* at § 10 n.15 ("The Agencies normally give the most weight to the results of this analysis over the short term.").

express a wariness regarding the possibility that such savings are contingent upon commensurate reductions in innovation.

The agencies' concern with the merged firm's ability to appropriate the benefits of its innovations seems directly to implicate the patent holdup problem. Patent holdup is fundamentally a problem of rent appropriation: it arises when relationship-specific investments are made ex ante that rights holders may exploit ex post. Presumably, the agencies would be concerned when a merger would increase a firm's ability to engage in such anticompetitive opportunism, but recognize the benefits that derive from a firm's increased capacity to prevent or mitigate such conduct.

V. WHETHER BUILDING PATENT PORTFOLIOS TO FACILITATE CROSS LICENSING CAN BE A COGNIZABLE EFFICIENCY IN MERGER ANALYSIS

The agencies have established a detailed framework for analyzing a wide range of potential efficiency claims. While they are skeptical of novel efficiency arguments,[122] the practical realities of the contemporary high-tech economy suggest that the agencies' views are likely to evolve. The New Economy is characterized by dynamic competition and innovation, and firms must constantly discern new competitive strategies. As noted above, patents may present serious problems for firms operating within high-tech industries. The costs of ex ante contracting—that is, identifying all relevant patentees and negotiating licenses—are often prohibitive, leading firms to produce first and deal with infringement later (if and when actions are brought against them). Incentives to contract ex ante are dampened not only because of the transactions costs resulting from fragmented patent rights, but also because of the prospect of patent holdup. The probabilistic nature of patents compounds these costs, as each party might enter into the negotiation with a wildly divergent estimate of the patents' values. Here, the patent holdup problem looms especially large, as high-tech firms make ex ante and costly patent-specific investments into their technologies.

Ownership can solve the holdup problem, and solving the holdup problem increases output. Merging in order to build one's patent portfolio and thereby to facilitate cross-licensing

122. *See, e.g.*, 2006 COMMENTARY, *supra* note 78, at 53 ("The best way to substantiate an efficiency claim is to demonstrate that similar efficiencies were achieved in the recent past from similar actions.").

agreements—and accordingly increasing output—may thus prove a particularly cost effective solution to the holdup problem in such settings. Whether the efficiencies deriving from such conduct satisfies the requirements for cognizability that the FTC and DOJ have established is, therefore, an intriguing and important question. While the ultimate analysis will necessarily turn on the underlying facts of the merger at issue, these efficiencies appear to be cognizable under the Guidelines.

A. Cognizability

Agencies and courts have long recognized the procompetitive effects of portfolio cross licensing. Given the widespread recognition of these benefits, their existence certainly seems well documented and "grounded on facts and business experience," as the agencies require.[123] But whether these potentially beneficial effects fulfill the agencies' requirements for cognizability requires further evaluation. Cognizability requires proffered merger efficiencies to be merger-specific, verifiable and not derivative of anticompetitive reductions in output or service.[124]

Cognizability analysis begins by framing the conduct purportedly creating the efficiency as a cost-effective mechanism for solving the holdup problem and reducing exorbitant transactions costs. *BMI* clearly recognizes reducing transactions costs as a cognizable efficiency.[125] The Court in *BMI* described how significant these costs were, noting, for example, that "[f]or an individual user, the transaction costs involved in direct dealing with individual copyright holders may well be prohibitively high[]."[126] Moreover, the Court recognized that reductions in these costs were meaningful benefits deriving from the blanket licenses—and were likely to increase output.

The agreement in *BMI* is analogous to the situation of merging to facilitate cross licenses in important respects. As was the case in *BMI*, transactions costs in high-tech industries—those within

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123. *Id.* at 51.

124. 2010 GUIDELINES, *supra* note 18, § 10.

125. Broad. Music, Inc. v. Columbia Broad. Sys., Inc., 441 U.S. 1 (1979). *See also* Major League Baseball Props., Inc. v. Salvino, Inc., 542 F.3d 290, 377 (2d Cir. 2008) ("Here, the MLBP joint venture offers substantial efficiency-enhancing benefits that the individual Clubs could not offer on their own, including decreased transaction costs on the sale of licenses, lower enforcement and monitoring costs, and the ability to one-stop shop (i.e., to purchases licenses from more than one Club in a central location).").

126. Broad. Music, 441 U.S. at 36 n.30.

which firms could plausibly argue that combining patent portfolios creates novel incentives and opportunities for cross licensing—are remarkably high. Patent rights in these industries are often both fragmented and pervasive; for instance, as many as 250,000 patents might cover the technology contained within a single smartphone.[127] These characteristics each increase search and negotiation costs and may well render transactions costs prohibitive: discerning whether a particular aspect of a technology is patent-protected, locating the owner of that patent, and negotiating with him over licensing terms may prove infeasible.

The possibility of patent holdup is another important transaction cost. Most high-tech products require significant up-front investments.[128] Additionally, many high-tech industries benefit from the existence of network effects, which arise when the value one user realizes from a product or service depends upon the total number of consumers using compatible technologies.[129] These effects compound the holdup problem, as they increase the value of the dominant technology disproportionately with respect to alternatives. The owners of rights to the dominant technology then have more bargaining leverage—and more incentive to exploit it ex post—with each additional user. Simultaneously, firms relying upon these patented technologies face an increasingly disparate tradeoff between the patented technology and alternatives. The patent holdup problem, then, may prove particularly pernicious in such settings. Merger is a potentially powerful solution to the holdup problem that can yield cognizable efficiencies.

The next step in the analysis is to examine verifiability. Verifiability is inherently a factual question, requiring a case-by-case analysis to determine. While reductions in transactions costs, including reducing the costs associated with patent holdup, are inherently difficult to quantify, this difficulty does not preclude their verifiability. First, the parties will likely be able to estimate a

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127. Richard Waters, *Patent Hunting Is Latest Game on Tech Bubble Circuit*, FINANCIAL TIMES (Jul. 27, 2011, 7:37 PM), http://www.ft.com/intl/cms/s/0/16025f76-b868-11e0-b62b-00144feabdc0.html - axzz1gXCCpEyT.

128. Most high-tech products are also covered by numerous patents. Brief for Amicus Curiae Computer & Communications Industry Association in Support of Appellants EchoStar Corporation et al. on Rehearing En Banc in Support of Reversal at 2, TiVo Inc. v. EchoStar Corp., 646 F.3d 869 (Fed. Cir. 2011) ("…[T]he technology industry is characterized by an extraordinarily high patent-to-product ratio.").

129. KOBAYASHI & WRIGHT, *supra* note 5.

reasonable value for their cost savings. Some costs, for example, those spent on lawyers to draft and negotiate contracts, are directly observable. Estimating the amount of savings will be more difficult, but parties may well be able to utilize information regarding the costs to firms in the same or comparable industries of reaching cross-licensing agreements as a point of reference. Additionally, if transactions and holdup costs are observably profound within the industry, and the parties can clearly demonstrate that their increased ability to enter into cross-licensing arrangements will significantly lower costs, courts may not require precise calculation of these savings. In both *BMI*[130] and *Salvino*,[131] for instance, the courts noted that the restraints at issue meaningfully reduced transactions costs, and relied upon this reduction in reaching their conclusions about the restraints, without calculating the exact extent of the savings. In sum, the efficiencies associated with merging to build a patent portfolio can be verifiable.

The next question to address is whether the efficiencies arise from anticompetitive reductions in the product or service. As an initial matter, it is important to note that no merger case thus far has turned on this prong of the efficiencies analysis; that is, the courts and agencies have not rejected a proffered efficiency that they first found to be cognizable, verifiable, and merger specific, because that efficiency arose solely from anticompetitive reductions in output.[132] Indeed, the agencies offered very little guidance on this requirement. The only example from the 2006 Commentary addressing this requirement noted that, in addition to being nonverifiable, the alleged efficiencies entailed anticompetitive reductions in innovation and output, as they would only be realized by eliminating R&D and sales staffs of one of the merging

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130. Broad. Music, 441 U.S. 1 (1979) (holding that the rule of reason must be applied to the blanket licenses under examination, given the incredible efficiencies to which the licenses gave rise).

131. Major League Baseball Props., Inc. v. Salvino, Inc., 542 F.3d 290 (2d Cir. 2008) (finding the MLB's decision to consolidate intellectual property licensing authority within a singular entity allowed it to realize significant cost savings—such as diminishing transactions costs and allowing for one-stop shopping—and accordingly granting summary judgment to the MLB).

132. Only one example from the 2006 Commentary found that the purported efficiencies would stem from anticompetitive reductions in output and innovation—but the agencies had already determined that the efficiencies were speculative and ergo not verifiable. 2006 COMMENTARY, *supra* note 78, at 51-52.

parties.[133] Accordingly, the anticompetitive reductions of concern were direct effects of the proffered efficiency—spending less on R&D necessarily means there is less of it.

Properly framing a scenario under which anticompetitive reductions in output or quality of service might arise from merging patent portfolios in order to form cross licenses is difficult. The underlying conduct here seems inherently to be an effort to *expand* output. Indeed, the incentive to merge derives from the recognition that doing so may lower transactions costs and, accordingly, the marginal cost of production, allowing the merged firm to produce more. As such, the results one would expect to observe are increases in production, leading to greater competition via both price and quality metrics. Even if a merger has legitimate anticompetitive concerns, the notion that reducing patent holdup is somehow anticompetitive is wrong.

Additionally, the concern this requirement addresses seems to be derivative of market power—that is, the concern is that the combined firm would hold so much influence over the market that it could compete less vigorously along price and output margins without experiencing a negative market reaction. If this were truly what the requirement contemplates, then proving the existence or lack of market power would of course be an important part of the analysis. Here, however, there is no reason to presume that the conduct would give the consolidated firm any such power; indeed, the merger seems facially likely to yield a *more* competitive market, as the efficiency induces cross-licensing arrangements by reducing transactions costs—and thereby *increases* output.

In any event, the possibility of anticompetitive output reduction here may be conceived of under a couple carefully articulated constructs. One possible concern might be that the owner of the consolidated patent portfolio has an increased ability to threaten litigation against infringers that may chill production by at-risk firms. This conception, however, is flawed in several respects. First, it necessarily argues that lawfully enforcing one's property right is an anticompetitive activity—an argument that is difficult to make.[134] Patent law was designed specifically to confer

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133. *Id.*

134. *But see* Press Release, U.S. Dep't of Justice, Statement of the Department of Justice's Antitrust Division on Its Decision to Close Its Investigations of Google Inc.'s Acquisition of Motorola Mobility Holdings Inc. and the Acquisitions of Certain Patents by Apple Inc., Microsoft Corp. and Research in Motion Ltd. (Feb. 13, 2012), *available at* http://www.justice.gov/opa/pr/2012/February/12-at-210.html (noting that

ownership rights to inventors of valuable products or services. Bestowing this property right is a mechanism for maintaining the incentive to engage in inherently risky and expensive research.[135] And this incentive is considered beneficial to consumer welfare. Accordingly, the very goal that patent law contemplates is establishing a protectable property right, and it would seem nonsensical to argue that defending a legally conferred ownership right necessarily is an anticompetitive activity.

Additionally, this conception of the problem stands at odds with other antitrust law concepts: the *Noerr-Pennington* doctrine exempts petitioning activity—including litigation—from antitrust liability.[136] So long as a firm is not engaging in sham litigation, it cannot be held liable for anticompetitive effects that may arise as a result of that litigation.[137] This exception is a strong recognition that firms can and should have the ability to protect their property rights. Necessarily incorporated within this exception is the ability to *threaten* litigation—which is the fundamental conduct at issue here. The proffered efficiencies arising from the merger are not derivative of the lawsuit itself, but merely the threat of one. Building its patent portfolio allows the consolidated firm to engage in Cold War-style tactics, saying to other firms, "We can all bring equally viable infringement claims against each other, dissipating significant resources—so let's avoid not engage in this mutually assured destruction." And it simply cannot be the case that antitrust law would incoherently exempt actual litigation from liability but condemn the threat of litigation. In the same way it permits parties to engage in meritorious litigation, antitrust law allows firms to threaten to engage in meritorious litigation without risking antitrust liability.

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enforcing patent licenses can have an anticompetitive effect if it is used to hold up its competitors).

135. Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 994 (1997) (noting that potential inventors will only expend costly, limited resources when they have an expectation of profiting from such expenditures).

136. E.R.R. Presidents Conference v. Noerr Motor Freight, Inc., 365 U.S. 127 (1961); United Mine Workers v. Pennington, 381 U.S. 657 (1965); Cal. Motor Transp. Co. v. Trucking Unlimited, 404 U.S. 508 (1972); Prof'l Real Estate Investors, Inc. v. Columbia Pictures Indus., Inc., 508 U.S. 49 (1993).

137. Walker Process Equip., Inc. v. Food Mach. & Chem. Co., 382 U.S. 172 (1965).

A potential complication arises, owing to the probabilistic nature of patents.[138] That is, an argument could be made that the increased ability of the merged firm to threaten litigation would chill conduct both by firms who are knowingly and certainly infringing, and by those that are only potentially infringing. This chilling effect, however, again does not translate into an anticompetitive reduction in output deriving from the efficiency itself. The problem in fact stems from uncertainty within the patent system: if a rights holder credibly believes a firm is infringing upon its patent, the rational response is often to protect that patent by threatening the infringer with litigation despite uncertainties. The *Noerr-Pennington* doctrine[139] immunizes this rational response, while the *Walker Process*[140] exception limits its abuse. That non-infringing firms may face disincentives arising from this uncertainty is not an antitrust-relevant injury, because this uncertainty is not a problem antitrust law can resolve.

Aside from the increased viability of litigation threats, no other anticompetitive reductions in output or service seem to exist. Unlike the example provided in the 2006 Commentary,[141] anticompetitive reductions in output or service are simply not a direct effect of the efficiency contemplated here. Indeed, the conduct does not necessarily speak to either money invested in R&D or the pace of innovation—the only other anticompetitive reductions that the agencies specifically note as potentially problematic—at all. In fact, because the efficiency is derivative of the merged firm's increased ability to reduce transactions costs, by employing its patent portfolio as an agent to facilitate cross-licensing agreements, and thereby to increase output, it need not have any impact whatsoever upon R&D or innovation.[142] The efficiency itself simply does not contemplate these expenditures.

Finally, the agencies have expressed that they will consider a merger's impact upon the ability of the consolidated firm to "appropriate a greater fraction of the benefits resulting from its

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138. Lemley & Shapiro, *supra* note 33.

139. Noerr, 365 U.S. 127; Pennington, 381 U.S. 657 (finding that lobbying legislatures is immune from antitrust claims).

140. Walker Process, 382 U.S. 172 (limiting Noerr immunity in cases where patent was obtained through fraud).

141. 2006 COMMENTARY, *supra* note 78, at 51-52.

142. Again, this Article focuses upon firms that are actively engaged in the market, and are merging in order to reduce their costs of transacting within that market. Patent assertion entities are not explicitly considered.

innovations."[143] This concern seems directly to implicate the patent holdup problem—which is fundamentally an issue of appropriation. Presumably, the agencies would be concerned when a merger would increase a firm's ability to engage in such anticompetitive opportunism, but recognize the benefits that derive from a firm's increased capacity to alleviate such conduct. In the context under examination here, the merging parties are endeavoring to alleviate problematic value appropriation. Accordingly, concerns that the merged entity would have the capacity to extract anticompetitively high returns seem unlikely to arise. To the contrary, by reducing holdup and increasing cross licensing and output, this conduct seems to move value appropriation toward a more optimal level, in a manner that the Guidelines contemplate.

Accordingly, the diminishment in transactions costs and in the risk of welfare-reducing patent holdup—and the subsequent increase in output—that is realized when patent portfolios are combined and the ease of cross licensing is increased can conceivably be cognizable.

B. Merger Specificity

Merger specificity analysis is complex when applied to the potential cost savings associated with reducing the risk of patent holdup through acquiring the patent portfolio of target firm. The question is whether—assuming the efficiencies are both cognizable and verifiable—efficiencies accomplish any benefits that could not be realized another way? The agencies consider "[o]nly alternatives that are practical in the business situation faced by the merging firms" in answering this question.[144] Applying the Guidelines, there are several reasons to believe these efficiencies may satisfy the merger specificity requirement. Importantly, merger specificity may be demonstrated by analyzing the combined benefits of the unique diversification opportunity the merger presents and, relatedly, the increased ability of the post-merger firm to wield its patent portfolio as a meaningful threat of (or response to a threat of) litigation. However, other options for obtaining these benefits, such as patent pools, must also be considered.

143. 2010 GUIDELINES, *supra* note 18, § 10.

144. *Id*.

1. Arguments for Merger Specificity: Diversification and Ownership Benefits of Merger

The merger may diversify the post-merger firm's patent portfolio in meaningful and otherwise unachievable respects. The two firms may have uniquely complementary patents that provide the merged firm with a more comprehensive and powerful portfolio than either firm could achieve alone via its own internal growth. As noted above, the consolidation of portfolios smoothes the probabilistic nature of patents, allowing for more precise estimates of the portfolio's value.

This diversification function is a critical component in reducing transactions costs, as it helps to align each side's valuations of the patents at issue and, moreover, improves the owner's competitive posture by creating a more formidable portfolio. As the merged portfolio will be less dependent upon each individual patent to realize its worth, the owner will accordingly gain leverage in negotiations. A comprehensive portfolio will increase the likelihood both that the owner possesses patents that are of significant value and that these patents are being infringed. Thus, rivals will accurately perceive the consolidated portfolio as a larger threat and be increasingly willing to negotiate and cross license.

This type of diversification is not necessarily easy to attain by traditional R&D and innovation developments. While firms may plan to research certain aspects of a technology in order to bolster its portfolio in ways that increase its leverage in licensing negotiations, there is no ex ante guarantee these benefits will come to fruition: other firms might preempt them by inventing the technology first, or their efforts simply may not yield patentable results. Merging with another firm whose patent portfolio is already in existence offers an assurance that the diversification each firm is seeking will in fact be realized—and thus, that this benefit is verifiable.

Additionally, the merger confers upon the consolidated firm important ownership rights, and with ownership comes the power to build one's patent arsenal. This is a powerful function of ownership, as it entails the commensurate ability to litigate and to threaten to litigate, which is fundamental to reducing transactions costs and solving holdup problems. By consolidating ownership, the merger lends the firm the ability to use mutually assured destruction strategies—by credibly threatening countersuits to infringement actions brought against it—that expedite licensing

resolutions. Contractual alternatives to merger do not seem able to achieve these benefits. To realize this same value, a contract would need to grant the licensee the exclusive right to sue for infringement (this right cannot easily be fragmented)—which essentially *is* transferring ownership of the patent right itself, and, accordingly, is not a meaningful alternative.

The diversification and ownership benefits may be particularly pertinent to new entrants and to smaller firms with comparatively limited portfolios, for whom merger may provide the only viable option to achieving these efficiencies. Internal growth of portfolio—at least to extent necessary to engage in meaningful competition—may simply be infeasible for these firms, given the significantly larger size of other portfolios, and the fact that many technologies are not governed by one fundamental patent, but by numerous patents that are overlapping. Because many technologies are advancements built upon preexisting patents, the patents within existing portfolios are rarely mooted—in fact, just the opposite might be the case. As more advanced technologies incorporating earlier patents emerge, the earlier patents increase in value (as the number of uses to which they may be put increases). Of course, patents are limited in duration, which alleviates the most pernicious of these effects. But this limitation does not necessarily solve the short run problems.[145]

2. Non-Merger Alternatives: Patent Pools

One particular alternative for solving the holdup problem and reducing transactions costs is patent pooling. Patent pools are typically formed so that a group of patent holders can collectively license their patents to each other and to third parties.[146] While patent pooling may indeed mitigate problems of holdup,[147] they do not achieve all of the same benefits as does building patent portfolios in order to facilitate cross licensing. Additionally, pooling may not be a cost-efficient alternative.

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145. In fact, it may exacerbate the problem, because there is an incentive for patent holders to try to extract as much value as they can out of their patents today, knowing the patents will expire tomorrow. Of course this knowledge works both ways; potential licensees also know the patents will expire, and, when the termination date is close enough in proximity (so the licensee will not lose too much in potential profits), may simply threaten to wait for the patent to expire.

146. IP/ANTITRUST REPORT, *supra* note 6, at 64.

147. *Id.* at 57.

Because pooling arrangements do not confer ownership rights, they do not realize all of the same benefits that merging patent portfolios would, as described above. Recall that one critical benefit of merging patent portfolios is the ability to build a patent arsenal—which allows the consolidated firm to utilize mutually assured destruction tactics that are highly effective at avoiding litigation and inducing procompetitive licensing arrangements that increase output. These benefits simply cannot be realized contractually. Moreover, with pooling arrangements, some transactions costs (that are eliminated by merger) survive, as does the potential that the members of the pool will lose a valuable licensing right if another member chooses to defect. Depending upon the terms of the pooling arrangement, the other members may have viable claims against the defector that allow them to retain usage rights. However, as most pools are limited in duration, these terms may not be as effective as ownership. If a rights holder defects only after the pooling agreement has expired, the other members may not have increased leverage to respond. The pool might still prove beneficial, but only if they can discern a collective reaction to the defection (for example, if collectively refusing to deal with the defector is a significant threat.) Yet this collective response presupposes that each of the members have an approximately equal incentive not to deal with the defector such that individual members do not continue to contract with him, thereby undermining the collective. If firms instead utilize merger, they are the sole possessors of the increased leverage, and not dependent upon such collective action to realize the increase. Accordingly, merger offers a more concrete and dependable source of negotiating power.

Moreover, creating a patent pool may simply be too expensive relative to merger to be considered a viable alternative. First, the success of the pool depends in large part upon the number and character of members, and whether they comprise a sufficient percentage of the patented technology within the market to be a useful tool.[148] Inducing all of these firms to enter into the

148. *See, e.g.*, CARL SHAPIRO, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, *in* INNOVATION POLICY AND THE ECONOMY (2001) (discussing the conditions under which patent pools are effective and procompetitive); Steven C. Carlson, *Patent Pools and the Antitrust Dilemma*, 16 YALE J. REG. 359 (1999) (discussing the conditions under which patent pools are effective and procompetitive); Richard J. Gilbert, *Antitrust for Patent Pools: A Century of Policy Evolution*,

pooling arrangements requires locating the firms in the first instance, and negotiating over governing terms that all parties within the pool agree to in the second. Given that pools are generally more effective the more comprehensive they are, these costs may be exorbitant. Additionally, once the basic framework for the pool is established, the members must then expend costs to form and monitor an independent agent, who must determine both which patents are allowed within the pool and the terms and prices of licenses. These decisions are costly but crucial, as the agent must determine which patents are complementary and which are substitutes in order to to avoid potential antitrust violations deriving from the competitor members collectively reducing competition and setting prices and conditions for licenses. Indeed, the FTC and DOJ seem far more concerned with the potential anticompetitive effects derived from pooling arrangements than from cross-licensing agreements—indicating that cross licenses may be a more cost effective and procompetitive solution to the anticommons problems.[149]

Accordingly, the increased output, diminished transactions costs and reduced risk of anticompetitive holdup that arise from merging patent portfolios in order to facilitate cross licenses may be cognizable efficiencies in merger analysis.

VI. CONCLUSION

The New Economy presents novel complications and competitive climates for high-tech firms. Given the proliferation of patents and the intense dispersion of rights within this environment, traditional anticommons problems of high transactions costs and holdup problems emerge as significant obstacles to innovation and production. Overcoming these obstacles requires firms to experiment with various strategies, embracing traditional economic concepts and applying them in similar, but altered, manners. One important mechanism by which to solve or mitigate the exorbitant transactions costs and holdup problems defining high-tech markets is ownership. And one

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2004 STAN. TECH. L. REV. 3 (2004) (discussing the conditions under which patent pools are effective and procompetitive).

149. In the chapter on portfolio cross-licensing agreements and patent pools, the agencies spend about 5 pages discussing both the pro- and anticompetitive effects of cross licenses, whereas they analyze the competitive effects of pooling arrangements for 20 pages. IP/ANTITRUST REPORT, *supra* note 6, ch. 3.

particular application of the ownership principle is a merger between firms predicated upon the notion that building a patent portfolio with enough leverage to induce cross-licensing agreements can meaningfully overcome these anticommons problems. Such conduct may yield significant consumer welfare gains—as it allows firms to increase output and reduce marginal costs. Investigating whether these efficiencies may be cognizable under the agencies' efficiency framework is accordingly an intriguing and important question. Because their realization is largely dependent upon the increased leverage in negotiations that ownership rights confer, as well as the important diversification arising from the merger, and because they are not derivative of anticompetitive output or service reductions, it appears that these efficiencies may, under proper circumstances, be cognizable under the 2010 Guidelines.