

[10-16-17] DRAFT CHAPTER

Non-Compensatory Damages, Attorney Fees, and Interest¹

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Introduction

In an ideal world, parties to patent suits behave efficiently and always act in good faith, knowledge is symmetric and perfect, and litigation is cost-free and accurate. In the real world, of course, none of these assumptions hold. Sometimes patentees bring weak cases that stretch claim language beyond the pale or assert claims that are almost certainly invalid. Conversely, sometimes accused infringers are found to have intentionally copied the patented technology or otherwise willfully refuse to license patent rights they very likely infringe. How courts deal with opportunistic behaviors like these varies considerably from country to country, and to an even greater degree than in other areas of patent law, each country's approach reflects broader cultural and legal norms. In the U.S., for example, enhanced damages--also referred to as "punitive" or "exemplary" damages--are an accepted way of sanctioning and deterring socially undesirable behavior, while in Europe punitive damages are themselves generally considered contrary to sound public policy. Likewise, while the "American rule" is that each party to a suit pays its own attorney, most other countries follow in some form or fashion the "English rule" of "loser pays," a practice with roots in the judicial system of the Byzantine Empire.²

In this chapter we consider the impact that these policy choices have on innovators, including for example their willingness to pursue or defend against allegations of infringement and their incentives to read and clear prior patents during the R&D process. In addition, we analyze the availability of pre- and post-judgment interest, which like both fee awards and punitive damages can have a significant impact on parties' incentives to "hold up or hold out."

I. Enhanced Damages

We begin with a discussion of enhanced damages in the United States, where punitive awards for patent infringement are most common.³ We then take a comparative look at how

¹ This is a draft chapter for a forthcoming volume on international patent remedies prepared as part of the INPRECOMP project, comments and questions should be directed to colleenchien@gmail.com.

² Werner Pfennigstorf, The European Experience with Attorney Fee Shifting, 47 LAW & CONTEMP. PROBS. 37, 41 (1984)

³ We are not aware of any existing data comparing the prevalence of enhanced damages awards across the globe. In our experience, such awards are more common in the US than anywhere else in the world. This is almost certainly true in terms of the absolute number of exemplary awards, and it may well also be true relative to the number of patent infringement suits filed in each nation.

other nations approach enhanced damages.⁴ Next, we consider normative arguments regarding enhanced damages, and conclude with recommendations and topics for future research.

A. Enhanced Damages in the United States

In the United States, enhanced damages for patent infringement have been available as a matter of judicial discretion since 1836.⁵ The current statutory language regarding enhanced damages is contained in § 284 of the Patent Act, which provides in relevant part that courts “may increase the damages up to three times the amount found or assessed.”⁶ The Supreme Court described this provision (albeit in dicta) as providing that “punitive or ‘increased’ damages” could be recovered “in a case of willful or bad-faith infringement.”⁷ Prior to the Federal Circuit’s creation, the regional U.S. Courts of Appeals similarly required willful infringement for imposing enhanced damages under § 284.⁸

For the first 24 years of the Federal Circuit’s existence, the court defined willfulness as a form of negligent infringement, holding that when “a potential infringer has actual notice of another’s patent rights, he has an affirmative duty to exercise due care to determine whether or not he is infringing.”⁹ However, in 2007 the court changed course, holding in *In re Seagate* that to prove willful infringement, a patentee must make “at least a showing of objective

⁴ [The members of the Enhanced Damages and Attorney’s Fees Group are cognizant of the fact that they are all North Americans (and all but one are from the United States). As a result, we particularly seek and value the input of INPRECOMP participants from other jurisdictions regarding this section of the group paper to ensure that the final version is written with the perspective of audiences around the world in mind.]

⁵ See Act of July 4, 1836, ch. 357, § 14, 5 Stat. 117, 123 (1836) (“[I]t shall be in the power of the court to render judgment for any sum above the amount found by such verdict as the actual damages sustained by the plaintiff, not exceeding three times the amount thereof, according to the circumstances of the case, with costs . . .”). Prior to 1836, treble damages were automatically awarded to a prevailing patentee. Patent Act of 1793, § 5, 1 Stat. 322; see also *Birdsall v. Coolidge*, 93 U.S. 64, 68-69 (1876) (discussing the history of the patent statutes in the 1800s).

⁶ 35 U.S.C. § 284 (2012).

⁷ *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 508 (1964); see also *Dowling v. United States*, 473 U.S. 207, 227 n.19 (1985) (“willful infringement”).

⁸ See, e.g., *Lam, Inc. v. Johns-Manville Corp.*, 668 F.2d 462, 474 (10th Cir. 1982) (“Courts have limited the increase to instances in which the infringement was willful, and even then it is committed to the trial court’s discretion.”); *Am. Safety Table Co. v. Schreiber*, 415 F.2d 373, 378 (2d Cir. 1969) (“Awards of increased damages are made sparingly and only when a clear showing of deliberate infringement justifies the exercise of the Court’s discretion. Where, however, a patent infringement is willful, intentional, and deliberate an award is proper.” (internal quotations omitted)).

⁹ *Underwater Devices Inc. v. Morrison-Knudsen Co.*, 717 F.2d 1380, 1389–90 (Fed. Cir. 1983), overruled by *In re Seagate Tech., LLC*, 497 F.3d 1360 (Fed. Cir. 2007) (en banc).

recklessness” by the accused infringer.¹⁰ This “objective recklessness” standard involved a two-part test:

[T]o establish willful infringement, a patentee must show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent. The state of mind of the accused infringer is not relevant to this objective inquiry. If this threshold objective standard is satisfied, the patentee must also demonstrate that this objectively-defined risk . . . was either known or so obvious that it should have been known to the accused infringer.¹¹

Subsequently, the Federal Circuit clarified that the first part of the *Seagate* test—the so-called objective prong—was “best decided by the judge as a question of law subject to *de novo* review.”¹² Under *Seagate* and subsequent Federal Circuit decisions, an infringer was not objectively reckless if it “raised a ‘substantial question’ as to the validity or non-infringement of the patent.”¹³ This was true even if the infringer “was unaware of the arguable defense when he acted.”¹⁴

Despite this apparently substantial change in the relevant legal standard, willfulness findings remained relatively common even after *Seagate*. According to one empirical study, findings of willful infringement in patent cases that reached final judgment went from 48% in the three-year period prior to *Seagate* to 37% for the similar period after the decision.¹⁵ However, when willfulness was found, the district court awarded enhanced damages only 55% of the time after *Seagate*, compared to over 80% of the time before it.¹⁶ In addition, over 70% of enhanced-damages awards were for double damages or less, considerably below the statutory maximum of treble damages.¹⁷

¹⁰ *In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc).

¹¹ *Id.*

¹² *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.*, 682 F.3d 1003, 1007 (Fed. Cir. 2012).

¹³ *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.*, 776 F.3d 837, 844 (Fed. Cir. 2015).

¹⁴ *Halo*, 136 S. Ct. at 1930 (citing *Seagate*, 497 F.3d at 1371; *Spine Solutions, Inc. v. Medtronic Sofamor Danek USA, Inc.*, 620 F.3d 1305, 1319 (Fed. Cir. 2010)).

¹⁵ Christopher B. Seaman, *Willful Patent Infringement and Enhanced Damages After In re Seagate: An Empirical Study*, 97 IOWA L. REV. 417, 441 tbl.1 (2012)

¹⁶ *Id.* at 466 tbl.6.

¹⁷ *Id.* at 469 fig.3.

The Supreme Court again weighed in on the appropriate standard for enhanced damages in *Halo Electronics, Inc. v. Pulse Electronics*.¹⁸ While recognizing that the statutory text granted discretion to the trial courts in determining enhanced damages, it also explained that such discretion “‘should be exercised in light of the considerations’ underlying the grant of that discretion.”¹⁹ Specifically, it explained that enhanced damages under § 284 were “‘designed as a ‘punitive’ . . . sanction for egregious infringement behavior,” including “‘willful, wanton, malicious, bad-faith, deliberate, consciously wrongful [or] flagrant’” infringement.²⁰

Turning to *Seagate*, the Court held that while it “reflects, in many respects, a sound recognition that enhanced damages are generally appropriate under § 284 only in egregious cases,” the two-part test articulated by the Federal Circuit is “unduly rigid and impermissibly encumbers the statutory grant of discretion to district courts.”²¹ In particular, the Court explained, *Seagate* “can have the effect of insulating some of the worst patent infringers from any liability for enhanced damages” because the existence of a reasonable (albeit unsuccessful) defense “insulates the infringer from enhanced damages, even if he did not act on the basis of the defense or was even unaware of it.”²² As a result, under *Seagate*, “someone who plunders a patent—infringing it without any reason to suppose his conduct is arguably defensible—can nevertheless escape any liability under § 284.”²³ Thus, after *Halo*, the “subjective willfulness” of an alleged patent infringer may warrant enhanced damages, “without regard to whether his infringement was objectively reckless.”²⁴ Furthermore, a patentee need only prove willfulness by a preponderance of the evidence (unlike *Seagate*, which required clear-and-convincing evidence).²⁵

In a separate concurrence, Justice Breyer (writing for himself and two other Justices) recognized that enhanced damages “have a role to play in achieving the[] objectives” of preventing deliberate infringement.²⁶ He also agreed that *Seagate* “takes too mechanical an approach to the award of enhanced damages.”²⁷ Justice Breyer further observed that mere

¹⁸ 136 S. Ct. 1923 (2016).

¹⁹ *Id.* at 1932 (quoting *Octane Fitness v. Highmark*, 134 S. Ct. 1749, 1756 (2014)).

²⁰ *Id.*

²¹ *Id.*

²² *Id.* at 1932-33.

²³ *Id.* at 1933.

²⁴ *Id.*

²⁵ *Id.* at 1934.

²⁶ *Id.* at 1937 (Breyer, J., concurring).

²⁷ *Id.* (Breyer, J., concurring)

knowledge of a patent, without more, is insufficient to demonstrate “willful misconduct.”²⁸ In addition, he contended that an accused infringer was not required to obtain advice of counsel to prevent a willfulness finding (although it could do so if it wished), and that enhanced damages “may not serve to compensate patentees for infringement related-costs or litigation expenses.”²⁹ In sum, he argued that enhanced damages should be carefully applied “to ensure that they only target cases of egregious misconduct.”³⁰

B. Comparative Approaches to Enhanced Damages

As mentioned above, in our collective experience, awarding enhanced damages in patent disputes is largely an American phenomenon. While punitive damages for patent infringement are theoretically available in some other countries, they are rarely granted.

For example, in the U.K., in *Rookes v. Barnard*, the House of Lords held that exemplary damages are generally available for, *inter alia*, “wrongful conduct which has been calculated by the defendant to make a profit for himself which may well exceed the compensation payable to the plaintiff,”³¹ but the same court subsequently explained that the award of punitive damages in civil cases is an “undesirable anomaly,” which ought to be limited as much as possible.³² In *Catnic Components Ltd. v. Hill & Smith*,³³ the Patents Court went so far as to hold that exemplary damages could not be awarded for patent infringement.³⁴ But while exemplary damages are now apparently available in patent cases,³⁵ we are not aware of any U.K. patent decisions actually awarding exemplary damages.³⁶

²⁸ *Id.* at 1936 (Breyer, J., concurring).

²⁹ *Id.* at 1936-37 (Breyer, J., concurring).

³⁰ *Id.* at 1938 (Breyer, J., concurring).

³¹ *Rookes v. Barnard*, [1964] AC 1129. The *Rookes* case did not involve intellectual property rights.

³² *Cassell & Co Ltd v Broome* [1972] 1 All ER 801, 837.

³³ [1983] F.S.R. 512.

³⁴ *See id.* at 541 (“In my judgment, the claim to exemplary damages is not open to the plaintiffs in the absence of any authority that exemplary damages had been awarded for infringement of patent prior to the decision of the House of Lords in *Rookes v. Barnard*.”).

³⁵ *See Kuddus v. Chief Constable of Leicestershire Constabulary*, [2001] U.K.H.L. 29 (holding that the categories of cases in which exemplary damages are available are not closed, while emphasizing again that “exemplary damages principle is itself an anomaly in the civil law.”)

³⁶ *See* Thomas F. Cotter, *Punitive Damages for Patent Infringement in the UK?*, Comparative Patent Remedies Blog (Nov. 27, 2013), <http://comparativepatentremedies.blogspot.com/2013/11/punitive-damages-for-patent.html>; *see also* AIPPI, United Kingdom Group, *Report Q186: Punitive Damages as a Contentious Issue of Intellectual Property Rights*, <https://aippi.org/download/committees/186/GR186uk.pdf> (“We are not aware of any exemplary damages having been sought in any patent case since the decision in *Kuddus*.”). In *Catnic*, [1983] F.S.R. 512,

In Australia, since 2006, courts have been able to increase damages upon consideration of the following: (1) “the flagrancy of the infringement”; (2) the need for deterrence; (3) the infringer’s conduct after infringement; (4) any benefit accrued to the infringer due to infringement; and (5) “all other relevant matters.”³⁷ Despite this, few reported decisions in Australia have granted enhanced damages under this provision.³⁸ Similarly, in Canada, punitive damages may be awarded “in exceptional cases of high-handed, malicious, arbitrary or highly reprehensible misconduct that represents a marked departure from the ordinary standards of decent behavior.”³⁹ But they have rarely been awarded in Canadian patent cases.⁴⁰

Punitive damages are rare in continental Europe, as most EU nations “consider punitive damages to be against public policy, and for the most part this view applies to IP infringement just as it does to other torts.”⁴¹ However, courts in Germany and France have occasionally awarded royalty amounts 25% to 100% higher than those compared to what the parties would have actually negotiated, which may serve as a form of deterrence.⁴² Similarly, although the Japanese Diet rejected a proposal to authorize enhanced damages in the 1998 amendments to Japan’s patent law, courts in Japan sometimes award royalties greater than the normal industry rate, which may serve as a mild deterrent.⁴³ In China as well, courts may award compensatory damages that are “one to three times the patent licensing fee”⁴⁴ even though, strictly speaking, punitive damages as such are not currently permitted.⁴⁵ Taiwan is one of the few jurisdictions

540-41, Falconer J noted no prior case awarding exemplary damages in a patent case had been cited to him, and between *Catnic* and *Kuddus*, such awards were not available as a matter of law.

³⁷ Australia Patents Act 1990 § 122(1A).

³⁸ THOMAS F. COTTER, *COMPARATIVE PATENT REMEDIES* 210 (2013). The only decision the authors are aware of is *Pacific Enterprises (Aust) Pty Ltd. v Bernen Pty Ltd* [2014] FCA 1372, where the Federal Court awarded \$40,000 in additional damages (on top of \$355,487.16 in compensatory damages) in a patent infringement proceeding. See <http://thedeceiver.com.au/361/>.

³⁹ *Bell Helicopter Textron Canada Ltd. v. Eurocopter*, 2013 FCA 219 ¶ 163.

⁴⁰ See Norman Siebrasse, *Opening the Door to Punitive Damages in Patent Law?*, SUFFICIENT DESCRIPTION BLOG (Oct. 4, 2013) (“Punitive damages are very rarely awarded in Canadian patent cases . . .”). For a recent, notable exception, see *Bell Helicopter Textron Canada Ltd. v. Eurocopter*, *supra* (affirming the patentee’s entitlement to punitive damages) and *Airbus Helicopters, S.A.S. v. Bell Helicopter Textron Canada Limitée*, 2017 FC 170 (assessing punitive damages).

⁴¹ COTTER, *supra* note 43, at 275.

⁴² *Id.* at 269-70 & n.187.

⁴³ *Id.* at 327-28.

⁴⁴ COTTER, *supra* note 43, at 358 (quoting article 21 of China’s Patent Trial Guidelines).

⁴⁵ The draft fourth Patent Law amendment, which is still under consideration, proposes authorizing treble damages for willful infringement. Thomas F. Cotter, *The Draft Fourth Amendment of the Chinese Patent Act Would Authorize Treble Damages for Willful Infringement*, *COMPARATIVE PATENT REMEDIES BLOG* (Oct. 31, 2013),

that, like the U.S., currently awards up to treble damages for intentional infringement.⁴⁶

Criminal sanctions are another potential deterrent to deliberate infringement, albeit one that is even more rarely used. The TRIPS Agreement is silent on the criminalization of patent infringement, though it specifies that member countries shall provide criminal penalties for certain forms of copyright and trademark infringement.⁴⁷ In the U.S., “Congress has not provided criminal penalties for distribution of goods infringing valid patents.”⁴⁸ However, a number of jurisdictions in Europe, South America, and Asia, have criminal patent infringement laws on the books,⁴⁹ and in early 2000, the European Union considered, but ultimately rejected a Directive that would have extended criminal liability to patent infringement.⁵⁰ However, criminal penalties appear to be extremely rare all across the globe.

C. Policy Arguments Relating to Enhanced Damages

There are two principal rationales for enhanced damages: to punish bad behavior and to discourage willful infringement by making the infringer pay more if caught. However, these rationales must be understood in context. In the pharmaceutical industry, the copying of discrete drugs by generic firms is a routine way of doing business that is regulated outside of enhanced damages as discussed below. By contrast, in component industries, non-willful or inadvertent infringement is common due to the difficulty of identifying with certainty all relevant prior art, the cumulative nature of innovation, and the weakness of certain issued patents. In addition, as discussed further below, discouraging the collection of knowledge can interfere with another rationale of the patent system – disclosure.

The award of enhanced damages is often justified in moralistic terms. As noted above, in *Halo Electronics, Inc. v. Pulse Electronics*,⁵¹ the U.S. Supreme Court explained that enhanced damages were “designed as a ‘punitive’ . . . sanction for egregious infringement behavior,”

<http://comparativepatentremedies.blogspot.com/2013/10/the-draft-fourth-amendment-of-chinese.html>; see also Covington LLP, *China’s Draft Patent Law Seeks Five Fold Increase on Damages Cap for Patent Infringement Cases* (Dec. 9, 2015), https://www.cov.com/~/_media/files/corporate/publications/2015/12/chinas_draft_patent_law_seeks_five_fold_increase_on_damages_cap_for_patent_infringement_cases.pdf.

⁴⁶ COTTER, *supra* note 43, at 372; see also Thomas F. Cotter, *After a Six-Month Hiatus, Enhanced Damages for Patent Infringement in Taiwan Are Back*, COMPARATIVE PATENT REMEDIES BLOG (Aug. 6, 2013), <http://comparativepatentremedies.blogspot.com/2013/08/after-six-month-hiatus-enhanced-damages.html>.

⁴⁷ TRIPS Agreement, Article 61.

⁴⁸ *Dowling v. U.S.*, 473, 207, 227 (1985).

⁴⁹ See, e.g., Irina D. Manta, *The Puzzle of Criminal Sanctions for Intellectual Property Infringement*, 24 Harv. J.L. & Tech. 469, 471-472, n8 (2011).

⁵⁰ *Id.* at 471, 491 (describing the European Union’s proposal to Second Intellectual Property Rights Enforcement Directive (“IPRED2”) that proposed criminal sanctions for infringements of all forms of IP, and vigorous opposition thereto).

⁵¹ 136 S. Ct. 1923 (2016).

including “willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or—indeed—characteristic of a pirate.”⁵² The Court emphasized the role of “subjective bad faith,” saying that “subjective willfulness of a patent infringer, intentional or knowing,” may in itself warrant enhanced damages, and the Court rejected the objective prong of the Federal Circuit’s test.⁵³ The UK and Canadian courts have justified enhanced damages in similar language, as addressing conduct which is “oppressive, high-handed, malicious, wanton or [the] like.”⁵⁴ While there is therefore considerable agreement as to the role of enhanced damages, it appears that there is a significant divergence between jurisdictions on the question of whether such goals are properly the domain of civil law, rather than criminal law. The House of Lords has remarked that “the objections to allowing juries to go beyond compensatory damages are overwhelming. To allow pure punishment in this way contravenes almost every principle which has been evolved for the protection of offenders,” and consequently the use of enhanced damages in civil cases ought to be strictly limited.⁵⁵

We prefer to frame the question in terms of the patent system’s ability to efficiently promote innovation. Moral considerations aside, enhanced damages can be justified in an economic sense as a mechanism to redress and deter opportunistic infringement. Without the possibility of increased damages (or some other enhanced monetary remedy, such as disgorgement), prospective infringers may be insufficiently deterred from simply appropriating a patented technology.⁵⁶ At worst, if the copier is caught and adjudged to infringe, it will have to pay the patentee’s actual damages for past infringement (plus face a possible injunction against future use),⁵⁷ and this amount may represent less than infringer’s own profit in some cases.⁵⁸ At best, the infringer avoids detection and pays nothing. This is sometimes described as the “catch-me-if-you-can” problem⁵⁹ or “heads-I-win-tails-you-lose.”⁶⁰ This kind of opportunistic

⁵² *Id.*

⁵³ *Halo*, 136 S. Ct. at 1933.

⁵⁴ *Cassell & Co Ltd v Broome* [1972] 1 All ER 801, 837; see similarly *Whiten v. Pilot Insurance Co.*, [2002] 1 S.C.R. 595, 617, in which the Supreme Court of Canada stated that “Punitive damages are awarded against a defendant in exceptional cases for “malicious, oppressive and high-handed” misconduct that “offends the court’s sense of decency.”

⁵⁵ *Cassell & Co Ltd v Broome* [1972] 1 All ER 801, 837.

⁵⁶ See *COTTER*, *supra* note 43, at 145 (“[F]rom an economic perspective, an award of enhanced damages might be socially optimal in a case in which awarding lost profits or foregone royalties alone would underdeter infringement of the type in suit.”).

⁵⁷ As discussed below, until recently, attorney’s fees were rarely awarded in U.S. patent cases.

⁵⁸ For instance, if the infringer is more efficient than the patentee.

⁵⁹ See *Monsanto Canada Inc. v. Rivett* 2009 FC 317, [23].

behavior can impair the incentive to invent by undermining the compensatory role of damages and unduly limiting the return to the patentee. Punitive damages serve as a counterweight and move the infringer's calculus back in the direction of deterrence.⁶¹ Indeed, in the U.S., courts consider whether an infringer has attempted to conceal its infringement – and thus reduce the risk of detection – in determining whether and how much to enhance damages under the so-called *Read* factors.⁶² However, the enhancement of damages based on patent knowledge can also deter reading and learning from patents,⁶³ thereby undermining the disclosure function of the patent system. We discuss both of these effects below.

Though enhanced damages can help deter opportunistic infringement, there are a variety of other mechanisms that also may serve to make the infringer worse off if it is caught than if it had licensed *ex ante*, such as litigation costs, injunctive relief, and disgorgement of the infringer's profits. Since the availability of fee shifting, injunctive relief, disgorgement, and enhanced damages all vary across jurisdictions, the general policy question is which of these provides the optimal response.

One difficulty is that while all of these alternatives to enhanced damages potentially make the infringer worse off than if it had licensed *ex ante*, none is well calibrated to the problem of opportunistic infringement. For example, the prospect of being sued, even in the US where the risk of paying the other party's fees is relatively low, may be costly enough to deter the "catch-me-if-you-can" strategy. However, it is not clear whether litigation cost exposure is sufficiently related to the frequency and magnitude of opportunistic infringement.⁶⁴ Similarly, the prospect of injunctive relief may also deter infringement, if an injunction allows the patentee

⁶⁰ See *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1158 (6th Cir. 1978).

⁶¹ See generally A. Mitchell Polinsky & Steven Shavell, *Punitive Damages: An Economic Analysis*, 111 HARV. L. REV. 869 (1998); see also *BMW of N. Am., Inc. v. Gore*, 517 U.S. 559, 582 (1996) (explaining that higher punitive damages "may . . . be justified in cases in which the injury is hard to detect").

⁶² These factors, first enunciated in *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 827 (Fed. Cir. 1992) are (1) "whether the infringer deliberately copied the ideas of another"; (2) "whether the infringer, when he knew of the other's patent protection, investigated the scope of the patent and formed a good-faith belief that it was invalid or that it was not infringed"; (3) "the infringer's behavior as a party to the litigation"; (4) the "[d]efendant's size and financial condition"; (5) the "[c]loseness of the case"; (6) the "[d]uration of the defendant's misconduct"; (7) "[r]emedial action by the defendant"; (8) the "[d]efendant's motivation for harm"; and (9) "[w]hether the defendant attempted to conceal its misconduct."

⁶³ See, e.g., Fed. Trade Comm'n, *To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy*, chapter 5, p. 29 (2003) (describing anecdotal evidence that "fear of willfulness charges discourages inventors from reading others' patents, thereby undermining the disclosure function of the patent system").

⁶⁴ For example, if there is a 30% probability of detection for royalties that would have been \$10m, then litigation costs would have to be \$7m to make the "catch-me-if-you-can" strategy unprofitable. The incentive to bargain *ex ante* is increased with fee-shifting, but the problem remains that it is not clear whether even this heightened incentive is generally sufficient to encourage *ex ante* bargaining. Of course, at a higher probability of detection, the incentive provided by avoiding litigation costs may be adequate.

to extract holdup value from the infringer. In effect, injunctive relief operates as a form of enhanced damages – an “injunction penalty” – in which the holdup value that is extracted with the aid of injunction constitutes the enhancement. However, as with the litigation cost “penalty,” the injunction “penalty” is unrelated to the magnitude of the “catch-me-if-you-can” problem, which is determined by the probability of detection. The remedy of disgorgement of the infringer’s profits will also often make the infringer worse off than if it had licensed *ex ante*, particularly if the patentee did not compete with the infringer and so would be entitled only to a reasonable royalty. A negotiated royalty will normally split the licensee’s profit from the use of the invention between the licensee and the patentee, while a disgorgement of the infringer’s profits will give the entire profit due to the infringement to the patentee.⁶⁵ Enhanced damages are not normally available if an accounting of profits has been granted.⁶⁶ While an accounting makes the infringer worse off than if it had licensed *ex ante*, again the difficulty is that the magnitude of the extra penalty is unrelated to the frequency of opportunistic behavior by infringers.

In contrast with the three foregoing remedies, enhanced damages can in principle be calibrated to efficiently deter intentional infringement. However, this does not appear to be attempted in practice in U.S. law, and it is not clear that it would be practical to do so with sufficient accuracy to make enhanced damages superior to the alternatives. For example, a 50% probability that infringement will be detected and proven would imply that damages should be doubled to provide the right incentive, but it is not clear how to assess the probability of detection. As noted above, U.S. courts do consider the likelihood of underdetection as a factor in assessing the magnitude of enhanced damages, but it is normally used as but one factor among many, and there is no attempt to determine its likelihood even approximately, so as to allow the penalty to be appropriately calibrated. The tendency is rather for factors such as concealment to be considered as going towards moral culpability. Nor is it clear that it is practical to calibrate enhanced damages to the profitability of opportunistic infringement.

Another problem is that enhanced damages may deter otherwise-beneficial challenges to the validity of some patents. The social benefit of challenging the validity of a patent is the elimination of the deadweight loss from monopoly pricing, discounted by the probability of

⁶⁵ An accounting of profits is regularly awarded in Canada, and Canadian courts have expressly recognized its role in deterring the “catch me if you can” strategy. *See Monsanto Canada Inc. v. Rivett* 2009 FC 317, [23] var’d 2010 FCA 207, 87 CPR(4th) 383; *Eli Lilly Co. v. Apotex Inc.* 2009 FC 991, 80 CPR(4th) 1, [663] aff’d 2010 FCA 240, 90 CPR(4th) 327; *Varco Canada Ltd v Pason Systems Corp* 2013 FC 750 [399].

⁶⁶ *See Eli Lilly Co. v. Apotex Inc.* 2009 FC 991, 80 CPR(4th) 1, [663] (noting that the “egregious” nature of the infringer’s conduct had already been weighted in affording the patentee with the right to elect for an accounting of the infringer’s profits). Similarly, in *Kuddus* [2001] UKHL 29, [109], Lord Scott suggested that the need for exemplary damages “has been largely overtaken by developments in the common law. Restitutionary damages are available now in many tort actions as well as those for breach of contract. The profit made by a wrongdoer can be extracted from him without the need to rely on the anomaly of exemplary damages,” citing the discussion by Lord Nicholls of Birkenhead in *Attorney General v Blake* [2001] 1 AC 268, 278-280. In the one patent-law context in which U.S. courts do award disgorgement of profits (for design patent infringement), the statute is understood to forbid the court from awarding both disgorgement and enhanced damages. *See Braun Inc. v. Dynamics Corp. of Am.*, 975 F.2d 815, 824 (Fed. Cir. 1992).

validity. Particularly in the case of a valuable technology, the social benefit of a challenge may be substantially greater than the cost of litigation, even if the patent is very probably valid. For example, in the pharmaceutical context, there is a very large social benefit to invalidating a blockbuster pharmaceutical patent, and even given the high cost of pharmaceutical patent litigation, there is likely often a net social benefit to a validity challenge, even when the patent is probably valid. If detection is almost certain (as in the pharmaceutical context), the infringement will not impair the incentive to invent in those cases in which the patent is ultimately held to be valid because the patentee will be fully compensated in damages. The profit to be made from the infringement in cases in which the patent turns out to be invalid therefore provides an incentive to undertake potentially socially beneficial patent challenges. Awarding enhanced damages in such cases risks unduly chilling these desirable patent challenges. Consistently with this, deemed infringement under the US pharmaceutical patent linkage system cannot give rise to enhanced damages in US law.⁶⁷ However, the same basic problem may arise outside the pharmaceutical industry.

Relatedly, and more relevant with respect to complex products, the availability of enhanced damages may induce innovators to engage in socially wasteful efforts to locate and license existing patent rights. For products covered by many patents, each covering an incremental innovation, pre-clearance of patent rights will often not be cost effective and, in fact, may be practically impossible.⁶⁸

However, perhaps the most significant problem with enhanced damages, at least in theory, is that knowledge of the patent has historically made it more likely that an infringer will owe them. That is to say, reading and knowing of patents, which fulfills the patent system's disclosure function, has been associated with significant liability enhancement. In US law, the penalty for reading patents extends beyond the risk of treble damages, to the award of attorney's fees as well.⁶⁹ Perhaps in part, as a result, one study found that knowledge⁷⁰ of the asserted patent was only alleged in thirty percent of US patent infringement complaints.⁷⁰ As a matter of fact, it

⁶⁷ See *Glaxo Group Ltd. v. Apotex, Inc.*, 376 F.3d 1339, 1350-51 (Fed. Cir. 2004) (holding that a technical act of infringement under section 271(e) of the Hatch-Waxman Act, cannot form the basis of a willfulness finding).

⁶⁸ See Christina Mulligan & Timothy B. Lee, *Scaling the Patent System*, 68 NYU Ann. Survey Am. L. 289, 289, 304 (2012) (estimating that “[i]n software, for example, patent clearance by all firms would require many times more hours of legal research than all patent lawyers in the United States can bill in a year” because “there are around twenty-four billion new [software] patent-firm pairs each year that could produce accidental infringement”).

⁶⁹ 35 U.S.C. § 285 (2012) (specifying that “[t]he court in exceptional cases may award reasonable attorney fees to the prevailing party”). One way to show that a case is “exceptional” is by showing that the defendant engaged in “willful infringement.” See, e.g., *Minks v. Polaris Indus.*, 546 F.3d 1364, 1375 (Fed. Cir. 2008) (upholding exceptional case determination and award of attorney fees based on jury finding of willful infringement); *Tate Access Floors, Inc. v. Maxcess Techs., Inc.*, 222 F.3d 958, 972 (Fed. Cir. 2000) (noting that an express finding of willful infringement is a sufficient basis for classifying a case as “exceptional,” and that when a trial court denies attorney fees in spite of a finding of willful infringement, the court must explain why the case is not “exceptional” within the meaning of the statute).

⁷⁰ See Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 N.C. L. REV. 1421, 1442 (2009) (reporting that, “[o]f . . . 193 cases, only 60 (or 31.1%) involved allegations that the defendant was even aware of the

is not clear how much the risk of enhanced damages is actually deterring the reading of patents. A recent study by Lisa Ouellette⁷¹ of 832 corresponding authors from scientific articles found that the majority of respondents were reading patents,⁷² both for technical (~80%) and legal reasons (~64%-76%),⁷³ and that only 9% of patent-reading respondents and only 4% of nonreaders said that they had been instructed to not read patents, though the results were highly technology specific.⁷⁴ While it may be common among certain classes of innovators to avoid reading patents in order to minimize liability, in other fields, like chemistry, patents are seen as an important part of the literature.⁷⁵

Case law following the Supreme Court of the United States's decision in *Halo* has made clear that mere knowledge of a patent, by itself, is insufficient to award enhanced damages.⁷⁶ For example, in *Finjan, Inc. v. Cisco Systems Inc.*,⁷⁷ the district court held that the accused

patent before the lawsuit”).

⁷¹ Lisa Larrimore Ouellette, *Who Reads Patents*, 35 *Nature Biotechnology* 5 (May 2017), 421

⁷² The literature on the gains to innovation from reading patents is summarized in Colleen Chien, *Contextualizing Patent Disclosure*, 69 *Vand. L. Rev.* 1849, 1859-1865 (2016). According to a forthcoming study by Professor Dietmar Harhoff and his colleagues, patent reading varies greatly by industry field. When inventors from the United States, Europe, and Asia were asked to quantify the time saved in their respective invention processes due to the availability of patent information, the answer depended on the industry. Though the median time savings was 5.9 hours and the mean was 12.2 hours, in the field of organic chemicals, the average time savings from reading a patent was thirty-six hours. In contrast, survey takers reported an average saving in digital communication technology of only one hour from reading a patent. The use of chemistry patents as technical sources of information is also reflected in studies of citation patterns by scientific researchers. In their study of the thirty thousand PTO patents cited by research articles, Professors Glänzel and Meyer found that chemical patents captured a majority of the citations. Drug and medical patents were also highly cited. Among individual patents, content mattered. When surveyed, researchers found the inclusion of details from practice—for example, the choice of equipment, implementation protocols, and recipes—to be most useful.

⁷³ E.g. to determine if the researcher's was patentable or infringing. Ouellette, *supra* at 421-422.

⁷⁴ *Id.*, 423 (also reporting that concerns about 37% of industry researchers in electronics and software had been instructed not to read patents, the highest among all sectors.)

⁷⁵ *Id.*

⁷⁶ See, e.g., *Cont'l Circuits LLC v. Intel Corp.*, No. CV16-2026 PHX DGC, 2017 WL 679116, at *11 (D. Ariz. Feb. 21, 2017) (stating that “under *Halo*, knowledge is a necessary condition of willfulness, but not a sufficient one,” and granting the defendant's motion to dismiss the claim for enhanced damages because “[p]laintiff has alleged sufficient facts to show knowledge, but not to show the additional element of egregiousness”); *CG Tech. Dev., LLC v. Big Fish Games, Inc.*, 2016 WL 4521682, at *14 (D. Nev. Aug. 29, 2016) (holding that allegations that defendant was “made aware of” the patents-in-suit and “continued use of its infringing products constitutes willful and blatant infringement” was inadequate for enhanced damages because “they fail to allege any facts suggesting that Defendant's conduct is egregious ... beyond typical infringement” (internal quotations omitted)); see also *Varian Med. Sys., Inc. v. Elekta AB*, 2016 WL 3748772, at *4-8 (D. Del. July 12, 2016) (holding that knowledge of a patent by a foreign subsidiary, and “formulaic recitation of the pre-*Halo* elements of a willful infringement claim,” are insufficient to plead egregious infringement). But see *Blitzsafe Texas, LLC v. Volkswagen Grp. of Am., Inc.*, 2016 WL 4778699 (Aug. 19, 2017) (holding that defendant's pre-suit knowledge of the patent, through a citation to the patent application that later issued as the patent during an *inter partes* reexamination, alleged a plausible case of pre-suit willful infringement).

⁷⁷ No. 17-CV-00072-BLF, 2017 WL 2462423 (N.D. Cal. June 7, 2017).

infringer's awareness of the plaintiff's patent portfolio, including through unsuccessful pre-suit licensing negotiations, did not state a plausible claim for willful infringement after *Halo*.⁷⁸ It reasoned that plaintiff's "conclusory allegation that despite knowledge of [patentee]'s patent portfolio, Defendant has sold and continues to sell the accused products and services" failed to plausibly allege "'egregious' conduct that would warrant enhanced damages under *Halo*."⁷⁹ In sum, while "[k]nowledge of the patent alleged to be willful infringed continues to be a prerequisite to enhanced damages,"⁸⁰ something more than mere awareness is needed to make the infringer's conduct egregious enough to warrant the imposition of enhanced damages.

Evidence that the infringer has copied the patented technology, when coupled with knowledge of the patent, can be sufficient for a court to impose enhanced damages after *Halo*.⁸¹ For instance, in *Apple Inc. v. Samsung Electronics Co.*,⁸² the district court held that the defendant's continued sale of a product containing a copied feature (Apple's swipe-to-unlock functionality) was substantial evidence to support the jury's finding of willfulness, at least once the defendant had knowledge of the patent through the filing of plaintiff's complaint.⁸³ Considering the *Read* factors, the district court then imposed a 30% enhancement of the jury's compensatory damages award, again basing its decision in part on undisputed evidence that the defendant had copied the patented feature.⁸⁴ Similarly, efforts by the infringer to conceal its conduct may warrant enhanced damages.⁸⁵

In principle, then, whether enhanced damages should be available is not a question that can be addressed in isolation. It turns on numerous other features of the patent system, including fee-shifting, disgorgement of profits, permanent injunctions, preliminary injunctions, and the availability of administrative review of granted patents. While all of these features of the patent system interact with enhanced damages, they also have independent justifications and there is

⁷⁸ *Id.* at *1-2, *5. During this licensing negotiation, "the parties agreed that neither ... party's disclosure" of information "shall constitute, or be used, by disclosing party, ... as evidence in any legal action to prove ... enhanced damages due to willful infringement." *Id.* at *1.

⁷⁹ *Id.* at *5 (internal brackets omitted).

⁸⁰ *WPIB, LLC v. Kohler Co.*, 829 F.3d 1317, 1341 (Fed. Cir. 2016).

⁸¹ *See, e.g.*, *Imperium IP Holdings (Cayman), Ltd. v. Samsung Elecs. Co.*, 203 F. Supp. 3d 775, 763-64 (E.D. Tex. 2016) (finding defendant engaged in egregious infringement and awarding the maximum enhancement of triple damages in part because of evidence of defendants' copying); Memorandum Decision and Order, *PPC Broadband v. Corning Optical Commc'ns RF, LLC*, 2016 WL 6537977, at *6 (N.D.N.Y. Nov. 3, 2016) (finding that "the evidence supports the conclusion that Corning deliberately copied PPC's patents" and awarding double damages as an enhancement);

⁸² ___ F. Supp. 3d ___, 2017 WL 2720220 (N.D. Cal. June 23, 2017); *Dominion Res. Inc. v. Alstom Grid, Inc.*, 2016 WL 5674713, at *21 (E.D. Pa. Oct. 3, 2016) (finding that the infringer "had the means and opportunity to copy [the] patent" and awarding double enhanced damages); *R-BOC Reps., Inc. v. Minemyer*, 233 F. Supp. 3d 647 (N.D. Ill. 2017) (awarding maximum enhanced damages in light of the infringers' "deliberate copying").

⁸³ *Id.* at *11-12; *see also id.* at *12 ("The fact that Samsung copied is evidence of willfulness.").

⁸⁴ *Id.* at *14 ("Evidence of copying weighs in favor of enhanced damages On appeal, Samsung did not even dispute that it copied Apple's slide-to-unlock feature. . . . [T]his factor weighs in favor of enhanced damages.").

⁸⁵ *See PPC Broadband*, 2016 WL 6537977, at *8 (finding that "Corning concealed its infringement" and concluding that "this factor strongly supports enhancement"); *see also Dominion Res. Inc.*, 2016 WL 5674713, at *24 (holding that defendant "decided internally not to share information," "did not admit its ongoing actions," and was "less than fully candid" to the patentee, and finding that this misconduct favored enhancing damages).

considerable jurisdictional variation on all these issues. This makes it difficult to provide any firm recommendations related to enhanced damages in isolation.

It may be that the variation between jurisdictions that we observe with respect to awarding enhanced damages is justified in light of the variations in other relevant aspects of the patent system. For instance, the U.S. does not permit disgorgement of the infringer's profits in utility patent cases,⁸⁶ fee shifting is not mandatory,⁸⁷ permanent injunctive relief is no longer automatic, since *eBay*,⁸⁸ preliminary injunctions are rarely granted in patent cases,⁸⁹ and *inter partes* review under the AIA is available to challenge granted patents.⁹⁰ All of these features, which are to a greater or lesser degree represented in other countries, point in the direction of relatively greater use of enhanced damages. It may be that cumulatively, these differences explain why enhanced damages are used so much more in the US than in other jurisdictions. On the other hand, the contrast between US practice and that of other jurisdictions is sufficiently strong that it may be driven by a basic philosophical difference over the appropriateness of inserting moralistic considerations into civil law remedies, rather than by an accumulation of technical differences.

D. Recommendations and Further Research

We **recommend** that the availability of enhanced damages be assessed with reference to the objectives of the patent system, rather than by moral criteria. In particular, we **recommend** that the award of enhanced damages should be assessed in light of its efficacy in addressing the problem of underdetection, in deterring copying and other types of deliberate infringement, and in encouraging *ex ante* bargaining (to the extent that is a desirable goal). It should also take into account the risk of deterring socially beneficial patent challenges, inducing excessive and patent searching and licensing, and patent learning. In addition, further empirical research into the question of how often researchers read patents, and whether they are deterred from doing so by the availability of enhanced damages and other sanctions, would be useful, particularly for technological fields and jurisdictions outside the U.S. that have not been addressed by prior

⁸⁶ [Cite to Lost Profits and Disgorgement of Defendant's Profits Chapter].

⁸⁷ See *infra*.

⁸⁸ [Cite to Injunctions Chapter]; see also Christopher B. Seaman, *Permanent Injunctions in Patent Litigation After eBay: An Empirical Study*, 101 IOWA L. REV. 1949 (2016) (reporting empirical data on injunction grant rates post-*eBay*).

⁸⁹ Kirti Gupta & Jay Kesan, *Studying the Impact of eBay on Injunctive Relief in Patent Cases* 15 fig. 3 (Aug. 1, 2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2816701 (finding that preliminary injunctions are granted less than 20% of the time they are requested following *eBay*)

⁹⁰ As a result, as Mark Lemley has explained, "patent law emphasizes deterrence least among the intellectual property regimes" in the U.S.: Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1045 (2005).

studies.⁹¹

Beyond that, it is difficult to make firm recommendations in light of the complex range of interacting mechanisms that are relevant. We have not reached a consensus as to the desirability of enhanced damages generally. It is probable that if we take all the other features of the patent system in different jurisdictions as given, significant jurisdictional variation in the use of enhanced damages would be justified. It is even possible that the current divergence between the US and most other jurisdictions can be justified in light of differences in other aspects of the patent system. Conversely, if we assume that all the relevant factors discussed above are available policy levers, designing a patent system which optimizes each of these mechanisms both in their own terms and in combination, is a major research project. We **recommend** that further research is required on both fronts. That is, it would be useful to investigate the extent to which the variation in existing practice related to enhanced damages can be justified in light of the existing variation between patent systems; and it would also be useful to investigate what a holistically optimized system might look like.

II. Attorney Fees

In this section, we provide a brief review of the existing scholarly research related to the award of attorney fees, as well as a summary of fee shifting regimes in place around the world.

A. Economic Theory and Empirical Research on the Effects of Fee Shifting

There is general agreement in the theoretical literature that awarding fees to prevailing parties in civil litigation will, all else equal, have two primary effects: first, that it will enhance the overall quality of the pool of lawsuits that are filed, and second that it will increase the intensity of litigation in suits that are filed.⁹² The first effect is based on the theory that the availability of fee awards will discourage the filing of weak (i.e., low-probability-of-winning) cases by reducing the plaintiff's total expected recovery and, conversely, encourage the filing of strong (i.e., high-probability-of-winning) cases by increasing the plaintiff's expected total award.⁹³ In effect, the risk of paying the defendant's costs acts as a potential penalty for bringing weak claims, while the prospect of having one's own costs covered by the defendant serves as a potential reward for bringing strong claims.

At the same time, however, existing models also suggest that fee shifting will tend to increase the duration and complexity of legal disputes. First, it is generally predicted that fewer

⁹¹ See *infra* notes 71-75 and accompanying text.

⁹² For an overview of the theoretical literature related to the effect that attorney fee awards have on litigation, see Kathryn E. Spier, *Litigation*, in 1 HANDBOOK OF LAW & ECONOMICS 259, 300-03 (A. Mitchell Polinsky & Steven Shavell, eds., 2007).

⁹³ This effect assumes that the parties have relatively symmetric information about the lawsuit. Fee shifting can also have the opposite effect when the parties have asymmetric information. A. Mitchell Polinsky & Daniel L. Rubinfeld, *Does the English Rule Discourage Low-Probability-of-Prevailing Plaintiffs?*, 27 J. LEGAL STUD. 519 (1998).

disputes will settle in a jurisdiction or area of law where fee awards are common. Given that litigants typically disagree at least marginally about the likely outcome of a case, the availability of fee awards will tend to exaggerate the gap between the parties' estimates of the expected value of their respective recovery or payout if the case is litigated to a decision on the merits. The wider this gap, the less likely parties are to reach a mutually-agreeable settlement. In addition to extending litigation, fee awards also tend to encourage parties to devote more resources to litigation. By raising the stakes of litigation, fee awards increase the marginal benefit of additional spending on litigation. Additionally, by raising the prospect that that one's opponent will wind up paying additional amounts spent on litigation, fee awards also decrease the marginal cost of doing so. Finally, because fee shifting increases the stakes of the dispute, a party that is risk-averse may be more willing than it otherwise would be to forgo a valid claim or agree to less favorable terms of settlement.⁹⁴

Existing empirical studies, though limited in number, tend to support these conclusions, though not uniformly.⁹⁵ Studies by Edward Snyder and James Hughes of medical malpractice litigation in Florida found that, after the state's introduction of fee shifting in this area of law, plaintiffs won more often and received higher damages on average.⁹⁶ A recent study by Christian Helmers et al. of intellectual property cases litigated in the U.K. also supports that prediction that fee shifting tends to weed out weaker suits, as well as cases involving smaller entities, and thus decreases the number of suits that are filed.⁹⁷ In addition, descriptive statistics collected by Brian Love et al. suggest a link between the prevalence of fee shifting in Europe and the continent's relative lack of suits by patent "trolls" that file large numbers of low value suits.⁹⁸ With respect to litigation intensity, Gary Fournier and Thomas Zuehlke also present evidence drawn from a

⁹⁴ A risk-averse person "when faced with a choice between two gambles with the same expected value, will usually choose the one with a smaller variability of return." WALTER NICHOLSON, MICROECONOMIC THEORY: BASIC PRINCIPLES AND EXTENSIONS 538 (9th ed. 2004); *see also* ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS 158 (5th ed. 2001).

⁹⁵ For an overview of the empirical literature related to attorneys fee awards, see Herbert M. Kritzer, *Lawyer Fees and Lawyer Behavior in Litigation: What Does the Empirical Literature Really Say?*, 80 TEX. L. REV. 1943 (2002).

⁹⁶ Edward A. Snyder & James W. Hughes, *The English Rule for Allocating Legal Costs: Evidence Confronts Theory*, 6 J. L. ECON. & ORG. 345 (1990); James W. Hughes & Edward A. Snyder, *Litigation and Settlement Under the English and American Rules: Theory and Evidence*, 38 J. L. ECON. 225 (1995). *But see* Jackson Williams, *Effects of Attorney Fee Shifting Law on Claiming Behavior*, 34 POL'Y SCI. 347 (2001) (finding that U.S. states with one of several forms of fee shifting rules had a higher ratio of bodily injury claims to property damage claims in suits following car accidents, and concluding that this finding contradicts the hypothesis that fee awards discourage frivolous claims).

⁹⁷ Christian Helmers, Yassine Lefouili, Brian Love, & Luke McDonagh, *Incentives to Litigate: Evidence from a Court Reform in the UK* (Working Paper, on file with the Authors) (studying IP cases filed before and after the introduction of a cap on the level of costs recoverable in suits litigated in the U.K.'s Intellectual Property Enterprise Court).

⁹⁸ Brian J. Love, Christian Helmers, Fabian Gaessler, & Maximilian Ernicke, *Patent Assertion Entities in Europe, in* PATENT ASSERTION ENTITIES AND COMPETITION POLICY (D. Daniel Sokol, ed., forthcoming) (finding in a study of patent suits brought in Germany and the U.K. a high rate of accused infringer-filed actions and a low rate of settlement relative to the U.S., and concluding from these findings that fee-shifting may deter patent monetization); Christian Helmers, Brian Love, & Luke McDonagh, *Is There a Patent Troll Problem in the U.K.?*, 24 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 509 (2014) (studying patent suits filed in the U.K. and making similar findings).

study of U.S. litigation suggesting that fee shifting does tend to reduce the likelihood of settlement.⁹⁹ On the other hand, two studies of litigation in Alaska (the only U.S. state that routinely awards attorney fees to prevailing parties), and one experimental study,¹⁰⁰ have failed to find that fee shifting has significant effects on litigation incentives and behavior.

B. Awards of Attorney Fees in the Selected Countries

In many countries, the prevailing party is entitled to recover some or all of its attorney fees and costs as a matter of right. Article 14 of the European Union's 2004 Enforcement Directive, for example, states that "Member States shall ensure that reasonable and proportionate legal costs and other expenses incurred by the successful party shall, as a general rule, be borne by the unsuccessful party, unless equity does not allow this."¹⁰¹ Individual practice nevertheless differs among E.U. members. In some states, for example, fees are awarded according to statutory rates which in practice are not fully compensatory, while in others fees more closely approximate the amount the prevailing party actually and reasonably incurred.¹⁰² Overall, however, some practitioners believe that the amounts awarded generally have increased since the implementation of the Directive.¹⁰³ In addition, a 2016 judgment of the Court of Justice for the European Union (CJEU) arising from a copyright action holds that, under the Directive, member state rules requiring that the prevailing party be reimbursed at a flat rate are permissible only if those rules result in the compensation of "a significant and appropriate part of the reasonable

⁹⁹ Gary M. Fournier & Thomas W. Zuehlke, *Litigation and Settlement: An Empirical Approach*, 71 REV. ECON. & STATS. 189, 193 (1989) (studying cases litigated in U.S. federal courts between 1979 and 1981).

¹⁰⁰ Susanne Di Pietro, Teresa W. Carns, & Pamela Kelley, *Alaska's English Rule: Attorney's Fee Shifting in Civil Cases*, Report to the Alaska Judicial Council (1995) ("The major conclusion of this report is that attorney fee shifting in Alaska seldom plays a significant role in civil litigation."), www.ajc.state.ak.us/reports/atyfee.pdf; Douglas C. Rennie, *Rule 82 and Tort Reform: An Empirical Study of the Impact of Alaska's English Rule on Federal Civil Case Filings*, 29 ALASKA L. REV. 1 (2012) (comparing cases filed in the District of Alaska with cases filed in other districts, and finding no significant differences); Laura Inglis, Kevin McCabe, Steve Rassenti, Daniel Simmons, & Erik Tallroth, *Experiments on the Effects of Cost Shifting, Court Costs, and Discovery on The Efficient Settlement of Tort Claims*, 33 FLA. ST. UNIV. L. REV. 89 (2005) (finding no significant difference in settlement outcomes in an experiment comparing settlements negotiated in legal environments that do and do not award attorney fees to prevailing parties).

¹⁰¹ Directive 2004/48/EC, of the European Parliament and of the Council of 29 April 2004 on the Enforcement of Intellectual Property Rights, art. 6(1) [hereinafter EC Enforcement Directive].

¹⁰² See THOMAS F. COTTER COMPARATIVE PATENT REMEDIES: A LEGAL AND ECONOMIC ANALYSIS 276 n.210 (2013). For other discussions, see generally GLOBAL PATENT LITIGATION: HOW AND WHERE TO WIN 4-15 to -16 (Michael C. Elmer & C. Gregory Gramenopoulos eds. 2016) [hereinafter GLOBAL PATENT LITIGATION]; Christian Osterrieth, *Patent Enforcement in Germany*, in PATENT ENFORCEMENT WORLDWIDE: WRITINGS IN HONOUR OF DIETER STAUDER 3D EDITION 111, 142-43 (Christopher Heath ed., 2016) [hereinafter PATENT ENFORCEMENT WORLDWIDE]. Christopher Rennie-Smith, *Patent Enforcement in the United Kingdom*, in PATENT ENFORCEMENT WORLDWIDE, *supra*, at 81, 109; Isabelle Romet, Amandine Métier & Dora Talvard, *Patent Enforcement in France*, in PATENT ENFORCEMENT WORLDWIDE, *supra*, at 145, 173.

¹⁰³ See COTTER, *supra* note 2, at 276 & n.210 (citations omitted).

costs” actually incurred, and also that fees for technical advisers also must be compensated if they are “directly and closely linked to” the judicial proceeding at issue.¹⁰⁴

In the major Asian jurisdictions the situation is somewhat different. In Japan, for example,

although the prevailing patentee is in principle entitled to recover any attorney fees it incurred as a result of the infringement, it appears that parties often do not claim such fees. Moreover, even when fees are awarded, they usually are based on a percentage (often 10 percent) of the compensatory damages awarded, rather than on an hours-worked basis. Commentators generally agree that these awards do not fully compensate the prevailing party¹⁰⁵

In China, article 65 of the Patent Law states, *inter alia*, that the compensation due for infringement “shall include the reasonable expenses paid by the patentee for putting an end to the infringement.”¹⁰⁶ In practice, however, attorney fees are not awarded as a matter of right, and when they are awarded they tend to be low.¹⁰⁷ Nonetheless, in one very recent case the Beijing IP Court awarded the prevailing plaintiff 1 million RMB (equal to about \$144,000 as of January 2, 2017); according to commentators, this may have been China’s first patent case in which a court based a fee award on the time billed by the prevailing party’s attorneys.¹⁰⁸ Fee awards also tend to be nominal in South Korea.¹⁰⁹

¹⁰⁴ United Video Properties, Inc. v. Telenet NV, Case No. C-57/15 (CJEU July 28, 2016). For brief discussion, see Thomas F. Cotter, *CJEU Rules on Recovery of attorney Fees and Other Costs*, COMPARATIVE PATENT REMEDIES BLOG, Aug. 22, 2016, <http://comparativepatentremedies.blogspot.com/2016/08/cjeu-rules-on-recovery-of-attorneys.html>.

¹⁰⁵ COTTER, *supra* note __, at 328 (citations omitted); see also Christopher Heath, *Patent Enforcement in Japan*, in PATENT ENFORCEMENT WORLDWIDE, *supra* note __, at 416 (stating that “attorney fees would have to be borne by each side”).

¹⁰⁶ China Patent Law art. 65.

¹⁰⁷ See COTTER, *supra* note __, at 360 (noting, in addition, that courts sometimes award the costs of investigation) (citations omitted); Xiaoguang Cui & Lena (Lanying) Shen, *China*, in GLOBAL PATENT LITIGATION, *supra* note __, at 16-34 to -35; Thomas Pattloch, *Patent Enforcement in China*, in PATENT ENFORCEMENT WORLDWIDE, *supra* note __, at 315, 347 (stating that, “in practice, only about one-third of the real costs will be awarded by the court”).

¹⁰⁸ For an English language discussion of the case, *Watchdata Co. Ltd. v. Hengbao Co. Ltd.*, see State Intell. Prop. Off., *Beijing Court Hands down Highest ever Compensation Order* (Dec. 15, 2016), http://english.sipo.gov.cn/news/iprspecial/201612/t20161215_1306487.html (“The court also supported the demand of the litigation cost, commonly known as attorney fees, considering the necessity of hiring agents, the difficulty of the case and the actual contribution of the lawyers. For the first time, the Beijing Intellectual Property Court recognized the above three factors as the principles to judge attorney fees.”). See also Thomas F. Cotter, *From Around the Blogs: Lost Profits in China, Accountings of Profits in Canada, and Reasonable Royalties in the U.S.*, COMPARATIVE PATENT REMEDIES BLOG, Dec. 15, 2016, <http://comparativepatentremedies.blogspot.com/2016/12/from-around-blogs-lost-profits-in-china.html> (citing two other sources discussing *Watchdata*).

¹⁰⁹ See COTTER, *supra* note __, at 370 (citations omitted); Jay J. Kim et al., *South Korea*, in GLOBAL PATENT LITIGATION, *supra* note __, at 30-19; Byungil Kim, *Patent Enforcement in Korea*, in PATENT ENFORCEMENT WORLDWIDE, *supra* note __, at 421, 436.

The United States provides a further point of contrast with other jurisdictions. The general rule in the United States (hence known as the “American Rule”) is that each party bears its own attorney fees.¹¹⁰ There are some exceptions to this rule, for example by statute in the antitrust and civil rights contexts; and courts inherently have the authority to award fees for “willful disobedience of a court order” or “when the losing party has ‘acted in bad faith, vexatiously, wantonly, or for oppressive reasons. . . .’”¹¹¹ Aside from this inherent authority, awards of fees in patent cases in particular are governed by 35 U.S.C. § 285, which states that “[t]he court in exceptional cases may award reasonable attorney fees to the prevailing party.” Until fairly recently, the governing Federal Circuit precedent construing § 285 could be summarized as follows:

The burden is on the moving party to establish the exceptional nature of the case by clear and convincing evidence, and “[o]nly a limited universe of circumstances warrants a finding of exceptionality in a patent case: ‘inequitable conduct before the PTO; litigation misconduct; vexatious, unjustified, and otherwise bad faith litigation; a frivolous suit or willful infringement.’” Once the movant establishes exceptionality, the court then determines whether a fee award is appropriate, taking into account such factors as “the closeness of the case, the tactics of counsel, the conduct of the parties, and any other factors that may contribute to a fair allocation of the burdens of litigation as between winner and loser.” The court alone determines whether a case is exceptional, subject to review for clear error; the amount of fees awarded, if any, is reviewed under the abuse of discretion standard.¹¹²

Furthermore, a court would award fees to the prevailing defendant based on the weakness of the patentee’s case only if the claims asserted were “objectively baseless” and brought “in subjective bad faith,”¹¹³—a standard that mirrored the stringent requirements for stripping litigants of *Noerr-Pennington* immunity for claims of attempted monopolization premised on sham litigation. In 2014, however, the U.S. Supreme Court in *Octane Fitness, LLC v. Icon Health & Fitness, Inc.* overruled this body of precedent, holding that courts should consider whether a case is “exceptional” for purposes of § 285 based on the “totality of the circumstances.”¹¹⁴ In a companion case, the Court also held that, contrary to Federal Circuit precedent, “an appellate

¹¹⁰ Court costs (e.g., docket and witness fees) generally are awarded to the prevailing party, but these tend to be fairly trivial. *See* COTTER, *supra* note __, at 146-47 & n.283 (citations omitted).

¹¹¹ *Octane Fitness, LLC v. Icon Health & Fitness, Inc.*, 134 S. Ct. 1749 (2014) (quoting *Alyeska Pipeline Serv. Co. v. Wilderness Soc’y*, 421 U.S. 240, 258–259 (1975)). *See also* Fed. R. Civ. P. 11.

¹¹² COTTER, *supra* note __, at 147-48 (citations omitted).

¹¹³ *Brooks Furniture Manufacturing, Inc. v. Dutailier International, Inc.*, 393 F.3d 1378, 1381 (Fed. Cir. 2005), *abrogated in part by* *Octane Fitness, LLC v. Icon Health & Fitness, Inc.*, 134 S. Ct. 1749 (2014).

¹¹⁴ *Octane Fitness*, 134 S. Ct. at 1756.

court should review all aspects of a district court's § 285 determination for abuse of discretion.”¹¹⁵

Since the Supreme Court's decision in *Octane Fitness*, the number of patent cases in which U.S. courts have awarded attorney fees has increased, though given the exceptionality requirement even under the more lenient standard that number remains small; and in most cases, courts have awarded only a fraction of the entire fees incurred in prosecution or defense of the action. Jiam, for example, reports that from the date of the *Octane Fitness* decision through March 31, 2015, courts granted fee petitions in 27 out of 63 cases—more than double the proportion reported in a 2011 study by Chien—but that the awards themselves mostly ranged from just \$200,000 to \$300,000.¹¹⁶ Similarly, Flanz reports a statistically significant higher percentage of successful fee petitions post-*Octane Fitness*,¹¹⁷ while Barry et al. report that the average number of fee award decisions “increased from about 4 per month to 7 per month.”¹¹⁸ The latter sources also reports, however, that the median fee award post-*Octane Fitness* has been approximately \$0.3 million, with the maximum award amounting to \$12.5 million. Furthermore, post-*Octane* and *Highmark*, the median attorney fees awarded represented 82% of the median amount requested.”¹¹⁹

C. Recommendations for Best Practices and Future Research

On the one hand, mandatory fee shifting ensures that the prevailing patent owner is compensated for what can be a huge expense,¹²⁰ and helps to deter weak assertions of patent rights. On the other hand, fee shifting may also encourage litigating parties to increase the duration and complexity of their disputes. In addition, there is some risk that mandatory fee shifting may discourage risk-averse parties with strong claims or defenses to abandon them, which might seem both socially inefficient and substantively unfair. Finally, any system of fee shifting generates some adjudicative cost to determine which fees are reasonable and thus compensable; and a system that conditions fee awards on other factors (e.g., whether the infringement was willful) adds to this “satellite litigation” cost. Consequently, it is hard to draw strong conclusions about whether fee shifting in the abstract is desirable or not, and resolution of

¹¹⁵ *Highmark Inc. v. Allcare Health Management System, Inc.*, 134 S. Ct. 1744, 1747 (2014). In a footnote, however, the Court added that “[t]he abuse-of-discretion standard does not preclude an appellate court’s correction of a district court’s legal or factual error” *Id.* at 1748 n.2.

¹¹⁶ See Hannah Jiam, *Fee-Shifting and Octane Fitness: An Empirical Approach Toward Understanding “Exceptional”*, 30 BERKELEY TECH. L.J. 611, 624, 627 (2015).

¹¹⁷ See Scott Flanz, *Octane Fitness: The Shifting of Patent Attorneys’ Fees Moves into High Gear*, 19 STAN. TECH. L. REV. 329 (2016).

¹¹⁸ CHRIS BARRY ET AL., PWC 2016 PATENT LITIGATION STUDY: ARE WE AT AN INFLECTION POINT? 7.

¹¹⁹ *Id.* For further discussion of the empirical studies on post-*Octane Fitness* fee awards to date, see Thomas F. Cotter & John M. Golden, *Empirical Studies Relating to Patents—Remedies*, in RESEARCH HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW (Peter Menell et al., eds., Edward Elgar Publishing forthcoming 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2665680 (manuscript at 15-16 & n.71).

¹²⁰ See Am. Intell. Prop. L. Assoc., 2017 Report of the Economic Survey I-118 to -122 (reporting mean costs through appeal of \$627,000 for cases with less than \$1million at stake, \$1.456 million with \$1-\$10 million at stake, \$2.374 million with \$10-\$25 million at stake, and \$3.831 million with more than \$25 million at stake).

the issue may depend as much on cultural expectations as on theoretical or empirical economics. As a practical matter, it is highly unlikely that the U.S. will adopt mandatory fee shifting in the foreseeable future, or that other countries in which fee shifting is commonplace will abandon it.

That said, we **recommend** the following: first, in countries in which fee shifting is an established part of the culture, fee shifting rules should aim to meaningfully compensate for the reasonable and proportionate costs actually incurred by the prevailing party unless equity prescribes otherwise (as, for example, the EC Enforcement Directive mandates), rather than only partially (as is often the case in practice). As a general rule, fee awards also should not be calculated based upon a specified portion of the amount awarded, as is sometimes the case in Japan. Second, in countries in which fee shifting is not the cultural norm, legislatures and courts arguably should consider experimenting with somewhat more generous fee shifting rules—for example, as proposed in the Innovation Act (which would have required courts to award fees to the prevailing party, “unless the court finds that the position and conduct of the nonprevailing party or parties were reasonably justified in law and fact or that special circumstances (such as severe economic hardship to a named inventor) make an award unjust”¹²¹)—perhaps coupled with discovery reforms to reduce the risk of the stronger party unnecessarily running up the tab.

Further research might center on, among other things, proposals for constraining the cost of satellite litigation over fees; and on an empirical determination of (1) how often courts in the United States award fees under the Equal Access to Justice Act, after which the Innovation Act proposal was to some degree modeled, and (2) whether settlements are more or less common in countries with mandatory fee shifting. We also would welcome further research on whether empirical studies of the effects of fee shifting can take into account both the actual cost of litigating in a given country, and the percentage of fees that are actually awarded in practice, though it is unclear whether or not the data are just too noisy for such analysis.

III. Pre- and Postjudgment Interest

A. Practice in Selected Countries

If damages are to fully compensate the patent owner for the losses attributable to the infringement, damages awards should take into account the time value of money. To this end, it would seem straightforward to require courts to award adequate pre- and postjudgment interest to ensure that the patent owner is no worse off than it would have been, absent the infringement.

¹²² Nonetheless, awards of prejudgment interest are not standard in every country; and even in

¹²¹ In 2013, the Innovation Act, H.R. 3309, 113th Cong. (2013), passed the U.S. House of Representatives, but ultimately stalled in the Senate. It was introduced again in the next session, H.R. 9, 114th Cong. (2015), but again failed to pass.

¹²² An interesting question, albeit one beyond the scope of the present project, is whether defendants who ultimately prevail in infringement litigation but who are temporarily excluded from the market or required to incur other costs (for example, due to a preliminary or permanent injunction that is subsequently vacated) should be entitled to some form of compensation, and if so whether they should be entitled to pre- and postjudgment interest on any such

countries in which they are awarded, if the rates are not carefully chosen or interest is not compounded, they may wind up either over- or undercompensating the prevailing patentee. The problem is particularly acute when the litigation is protracted, and undercompensatory prejudgment interest can encourage a defendant to delay and prolong litigation.¹²³ Consequently, undercompensatory prejudgment interest can exacerbate the problem of “holdout,” in which a user of patented technology unduly delays licensing, by effectively giving the infringer the benefit of a low-interest loan.

In the United States, the Supreme Court’s decision in *General Motors Corp. v. Devex Corp.*¹²⁴ interprets § 284 of the Patent Act as creating, in effect, a presumption that the prevailing patentee is entitled to prejudgment interest on the compensatory portion of a damages award. More specifically, *Devex* holds that, in enacting § 284 of the Patent Act, “Congress sought to ensure that the patent owner would in fact receive full compensation for ‘any damages’ he suffered as a result of the infringement,” and that courts therefore should award prejudgment interest on the compensatory portion of an award “absent some justification for withholding” it (such as when the patent owner has delayed prosecution of the suit).¹²⁵ Note, however, that “[b]ecause prejudgment interest has no punitive purpose, it must be applied only to the compensatory damages, not enhanced or other punitive damages.”¹²⁶ In addition, U.S. courts are obligated to award postjudgment interest running from the date on which the judgment is entered until the date on which the award is paid.¹²⁷

award. For brief discussion of the compensation issue, see, e.g., Thomas F. Cotter, *Setting the Amount of an Injunction Bond (and a Brief Digression about the Wright Brothers)*, COMPARATIVE PATENT REMEDIES BLOG, April 28, 2014, <http://comparativepatentremedies.blogspot.com/2014/04/setting-amount-of-injunction-bond-and.html>; Thomas F. Cotter, *A Couple of Commentaries on Genentech v. Hoechst*, COMPARATIVE PATENT REMEDIES BLOG, Nov. 18, 2016, <http://comparativepatentremedies.blogspot.com/2016/11/a-couple-of-commentaries-on-genentech-v.html>.
¹²³See *Eli Lilly Co. v. Apotex Inc.* 2014 FC 1254, [113].

¹²⁴ 461 U.S. 648 (1983).

¹²⁵ Roger D. Blair & Thomas F. Cotter, *Rethinking Patent Damages*, 10 TEXAS INTELL. PROP. L.J. 1, 24, 51 (2001). Earlier in time, interest ran only from the time that damages were actually determined (or, when courts submitted the damages calculation to a special master, “from the day when the master’s report was submitted to the court.” *Crosby Steam Gage & Valve Co. v. Consolidated Safety Valve Co.*, 141 U.S. 441, 458 (1891). Under this rule, “interest from the date on which damages were liquidated” effectively meant little or no prejudgment interest.

¹²⁶ *Humanscale Corp. v. CompX Int’l Inc.*, No. 3:09–CV–86, 2010 WL 3397455, at *1 (E.D. Va. Aug. 23, 2010) (citing *Devex*, 461 U.S. at 355).

¹²⁷ See 28 U.S.C. § 1961(a) (“Interest shall be allowed on any money judgment in a civil case recovered in a district court. . . . Such interest shall be calculated from the date of the entry of the judgment, at a rate equal to the weekly average 1-year constant maturity Treasury yield, as published by the Board of Governors of the Federal Reserve System, for the calendar week preceding the date of the judgment.”); *id.* § 1961(b) (stating that postjudgment “[i]nterest shall be computed daily to the date of payment except as provided in section 2516(b) of this title and section 1304(b) of title 31, and shall be compounded annually”); Fed. R. App. P. 37(a) (“Unless the law provides otherwise, if a money judgment in a civil case is affirmed, whatever interest is allowed by law is payable from the date when the district court’s judgment was entered.”). See also PATENT DAMAGES HANDBOOK COMM., COMPENSATORY DAMAGES ISSUES IN PATENT INFRINGEMENT CASES: A HANDBOOK FOR FEDERAL DISTRICT COURT JUDGES 3 (2010), https://www.law.berkeley.edu/files/bclt_PatentDamages_Ed.pdf (“[T]he court may award pre-judgment interest

Courts nevertheless have wide discretion to determine the appropriate interest rate and whether to award simple or compound interest, and these choices can have a substantial impact on the amount actually paid.¹²⁸ Awarding compound interest is necessary to ensure that the patentee is not rendered worse off than she would have been absent the infringement. For example, suppose that the patent owner suffers a \$1 million loss on March 1, 2007, and is awarded \$1 million plus simple interest at an annual rate of 5% on March 1, 2017 (the date of judgment). The total award will be \$1.5 million. If the interest had been compounded annually instead at the 5% rate, the total award would come to \$1,628,890, which “reflects more accurately the wealth the patentee would have had as of 201[7], had the infringement never occurred and had she invested the \$1 million profit in a relatively safe venture.”¹²⁹

As for the rate chosen, however, Epstein argues that courts generally should select a rate that reflects the defendant’s cost of short-term borrowing (that is, a restitutionary award) rather than the plaintiff’s opportunity cost of capital (that is, a compensatory award), because among other problems the latter conclusively presumes that the money the plaintiff would have had available to invest absent the infringement would have earned a positive return. Epstein further argues that courts should avoid using both the prime rate, which is often higher than the rate the defendant would have to pay to borrow an amount in excess of \$1 million, and the risk-free rate available on Treasury bills, which is unavailable to most private entities. Instead, he urges courts in the U.S. to make use of Federal Reserve survey rates to estimate the defendant’s cost of borrowing in an objective (and comparatively nonintrusive) manner.¹³⁰ We are inclined to agree with Epstein’s proposal.¹³¹

under 35 U.S.C. § 284 on the compensatory portion of the damages award, pre-judgment interest on any award of attorney fees, and post-judgment interest under Fed. R. [App.] P. 37 on the entire award.”).

¹²⁸ See, e.g., *ActiveVideo Networks, Inc. v. Verizon Comm’ns, Inc.*, Civil Action No. 2:10cv248, 2011 WL 4899922, at *3 (E.D. Va. Oct. 14, 2011) (stating that courts have “wide latitude” in selecting a prejudgment interest rate, with most opting for “either prime rate or the U.S. Treasury rate,” while postjudgment interest is calculated under 28 U.S.C. § 1961 “at a rate equal to the weekly average 1-year constant maturity Treasury yield . . . for the calendar week preceding the date of the judgment”), *aff’d in part, rev’d and remanded in part on other grounds*, 694 F.3d 1312 (Fed. Cir. 2012); Roy Epstein, *Prejudgment Interest Rates in Patent Cases: Don’t Compound an Error*, 24(2) IPL NEWSLETTER, Winter 2006, available at http://www.royepstein.com/Epstein_ipl_winter_2006.pdf; Fish & Richardson, *Prejudgment and Post-Judgment Interest*, <http://www.fr.com/services/litigation/patent/patent-damages/prejudgment-and-post-judgment-interest/>.

¹²⁹ COTTER, *supra* note __, at 277; see also Epstein, *supra* note __, at 10 (“From the point of view of economics, interest should always be compounded because a plaintiff would earn interest on interest when lending money. The only substantial justification for simple interest is greater ease of computation. But this rationale is archaic in an age of spreadsheets. Moreover, nearly all market interest rates involve compounding.”).

¹³⁰ See Epstein, *supra* note __, at 9-11. On the question of whether to use the plaintiff’s expected rate of return, Epstein further argues that doing so could induce plaintiffs to protract litigation, and that such a rate would be premised on the assumption that the plaintiff couldn’t have borrowed the money to invest from another source.

¹³¹ Ideally, it might be best for a legislative body to mandate a uniform policy so as to decrease the risk of forum shopping, though whether litigants would actually choose an otherwise inconvenient forum for such a benefit alone is debatable. See *Arctic Cat Inc. v. Bombardier Recreational Prods., Inc.*, Case No. 14-cv-62369, at 8 (S.D. Fla. Jan. 3, 2017), available at <http://patent-damages.com/wp-content/uploads/2017/01/artic-cat-sdfla-order.pdf> (expressing concern that applying the Florida interest rate “would encourage forum-shopping by patent litigants hoping to take advantage of states with high interest rates on judgments”).

The rules in other countries vary considerably. First, some countries don't award prejudgment interest at all,¹³² or only sparingly.¹³³ Second, some countries (including Germany and the U.K.) routinely award prejudgment interest but do not compound it.¹³⁴ A third model is presented by Japan, where courts generally award prejudgment interest at a statutory rate of 5%, and "[c]ompound interest is permitted under [Civil Code] article 405 if payment corresponding to a term of one year or more is delayed and the debtor fails to pay after the creditor demands payment."¹³⁵ "Depending on the actual time value of money, of course, a flat 5 percent rate could either over- or undercompensate. Given Japan's historically low interest rates in recent years—as of this writing, less than 1 percent for over the past decade—a 5 percent rate risks substantial overcompensation, even if interest is assessed only from the date of service of the complaint."¹³⁶ Of course, any such risk of overcompensation should be taken with a grain of salt, given the typically low damages awards rendered by Japanese courts as discussed in the Reasonable Royalties Paper.

B. Recommendations for Best Practices and Future Research

Consistent with the above discussion, the best way to prevent the rules with respect to interest from either over- or undercompensating patent owners (and from either over- or underdetering implementers) would be to require courts to award pre- and postjudgment compound interest, arguably at rates that reflect the defendant's cost of borrowing. To the extent such reforms would be difficult to implement in the short run (for example, due to cultural

¹³² See COTTER, *supra* note __, at 276; see also GLOBAL PATENT LITIGATION, *supra* note __, at 9-12 to-13 (noting the unavailability of prejudgment interest in Russian and Mexico); *id.* App. C at C-48 tbl.A (table listing information on pre- and postjudgment interest in selected countries).

¹³³ See COTTER, *supra* note __, at 276 n.211 (stating "while postjudgment interest is awarded in France, prejudgment interest generally is not. See Code civil [C. civ.] art. 1153-1 (Fr.) ("In all matters, the award of a compensation involves interest at the statutory rate even failing a claim or a specific provision in the judgment. Save as otherwise provided by legislation, that interest runs from the handing down of the judgment unless the judge otherwise rules.") (Fr.) (English translation available at <http://195.83.177.9/code/liste.phtml?lang=uk&c=22&r=447>); Knight v. AXA Assurance, [2009] EWHC (Pat) 1900 (QB), ¶ 9 (Eng.) (English case reporting experts' agreement that prejudgment interest generally is not available in France)"). As the text goes on to note, however, there are exceptions to this rule. See, e.g., S.A. Technogenia v. S.A.R.L. Martec, TGI Paris, June 25, 2010) (awarding prejudgment interest calculated yearly at the legal interest rate, from 1990). In addition, "French judges also are authorized to increase the amount of a damages award to reflect the increase in the inflation rate from the date of infringement." COTTER, *supra* note __, at 276 n.211 (citations omitted).

¹³⁴ See *id.* at 277 & nn. 212-13 (citations omitted). Relatedly, when German courts award lost profits, they compute them from the date on which the plaintiff demands payment, not from the date on which the injury is suffered, thus risking substantial undercompensation. See *id.* at 277 (citations omitted).

¹³⁵ *Id.* at 328. Somewhat analogous to German practice as noted *supra* note 27, "although interest 'theoretically' accrues from the date of the commission of a tortious act, in practice the plaintiff demands interest only from the date following service of the complaint." *Id.* (citing Katsuhiro Hoshi, *Research and Study on the Way of Damages Compensation and Penal Regulations in Cases of Intellectual Properties Infringement*, 7 IIP BULL. 1, 12 (1998)). The 5% rate comes from Civil Code article 404, which states that "Unless the parties otherwise manifest their intention with respect to a claim which bears interest, the rate of such interest shall be 5% per annum."

¹³⁶ *Id.*

resistance to awards based on compound interest, as may be the case in Germany) we recommend as a second-best solution the periodic reconsideration of statutory interest rates in countries such as Japan in which those rates may differ substantially from market rates.

As for future research, to our knowledge there has been no systematic empirical study of the interest rates U.S. courts select in patent infringement cases, or the frequency with which they award simple versus compound interest. Such research would be helpful in evaluating whether or to what extent the choices courts make with regard to interest likely result in systematic over- or undercompensation, or enable defendants to benefit from delay. Resolution of these matters in turn would help to illuminate, among other things, the debate over “patent holdout” as discussed in [Chapter 5].¹³⁷

¹³⁷ See *Devex*, 461 U.S. at 655 n.10 (“A rule denying prejudgment interest not only undercompensates the patent owner but may also grant a windfall to the infringer and create an incentive to prolong litigation. There is no reason why an infringer should stand in a better position than a party who agrees to pay a royalty and then fails to pay because of financial difficulties.”). The same could be said for a rule that awards inadequate pre- or postjudgment interest.