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Willful Patent Infringement and Enhanced Damages After *In re Seagate*: An Empirical Study

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Willful Patent Infringement and Enhanced Damages After *In Re Seagate*: An Empirical Study

Christopher B. Seaman*

ABSTRACT: Willful patent infringement is a critical issue in patent litigation, as it can result in an award of up to treble (enhanced) damages. In a 2007 decision, In re Seagate, the Federal Circuit significantly altered the standard governing willful infringement by requiring the patentee to prove at least “objective recklessness” by the accused infringer. Many observers predicted that this heightened standard would result in far fewer willfulness findings and enhanced-damages awards. To date, however, there has been no comprehensive empirical study of Seagate’s actual impact in patent litigation.

This Article fills that gap by analyzing six years of district-court decisions—three years before and after Seagate—on willful patent infringement and enhanced damages. Surprisingly, it determines that willful infringement was found in only about 10% fewer cases after Seagate. In addition, after Seagate, juries find willful infringement substantially more often than judges at trial. However, enhanced damages are awarded less frequently and in lower amounts when juries find willfulness compared to judges.

Finally, this Article evaluates the impact of several common factors on willful infringement decisions after Seagate. Based on the empirical data collected in this study, the existence of a “substantial” or “legitimate” defense to infringement is the strongest predictor of a finding of no willfulness after Seagate, while evidence of copying by the accused infringer was the strongest predictor of willfulness. In contrast, the remaining factors studied—

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opinions of counsel, attempts to design around the patent, reexamination at the PTO, and bifurcation of willfulness from liability at trial—had no statistically significant effect on willfulness decisions.

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I. INTRODUCTION

Willful infringement is a critical issue in patent litigation. A finding of willfulness can result in an award of enhanced damages up to triple the amount of actual damages proven by the patentee,¹ as well as the possibility of paying the patentee's attorney's fees.² Indeed, penalties in the range of tens of millions of dollars for willful infringement are not uncommon.³

Until recently, if a potential infringer had actual knowledge of a patent, it was obligated to satisfy "an affirmative duty to exercise due care to determine whether or not [it] is infringing."⁴ Among other things, this duty usually compelled an accused infringer to obtain a competent opinion of counsel before engaging in potentially infringing acts.⁵ Failure to do so was likely to result in a willfulness finding.⁶

However, in 2007, the Federal Circuit significantly altered the standard governing willfulness with its en banc decision in *In re Seagate Technology, LLC* ("*Seagate*").⁷ Specifically, *Seagate* abandoned the "affirmative duty of due care" requirement, instead requiring the patentee to demonstrate by clear and convincing evidence that the accused infringer was objectively reckless in its infringement.⁸ It also held that potential infringers were no longer obligated to obtain an opinion of counsel.⁹ As a result, knowledgeable observers asserted that *Seagate* would make proving willful infringement much more difficult, ultimately resulting in far fewer willfulness findings and enhanced-damages awards.¹⁰ To date, however, there has been no

1. 35 U.S.C. § 284 (2006) (stating that "the court may increase the damages up to three times the amount found or assessed").

2. *Id.* § 285.

3. See, e.g., *Krippelz v. Ford Motor Co.*, 670 F. Supp. 2d 815, 824 (N.D. Ill. 2009) (awarding approximately \$21 million in enhanced damages for willful infringement), *appeal docketed*, No. 11-1103 (Fed. Cir. Dec. 7, 2010); *i4i Ltd. P'ship v. Microsoft Corp.*, 670 F. Supp. 2d 568, 596 (E.D. Tex. 2009) (awarding \$40 million in enhanced damages for willful infringement), *aff'd as modified*, 589 F.3d 1246 (Fed. Cir. 2009), *opinion withdrawn and superseded by* 598 F.3d 831 (Fed. Cir. 2010), *aff'd on other grounds*, 131 S. Ct. 2238 (2011); Final Judgment at 2-3, *DataTreasury Corp. v. Wells Fargo & Co.*, No. 2:06-CV-72 (E.D. Tex. Aug. 1, 2011) (awarding \$26.6 million in enhanced damages for willful infringement).

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

5. *Id.* at 1390.

6. See Kimberly A. Moore, *Empirical Statistics on Willful Patent Infringement*, 14 FED. CIR. B.J. 227, 239 (2004) ("If no attorney opinion is presented in defense of a willfulness charge, the result is usually a finding of willfulness . . .").

7. *In re Seagate Tech., LLC*, 497 F.3d 1360 (Fed. Cir. 2007) (en banc), *cert. denied*, 552 U.S. 1230 (2008).

8. *Id.* at 1371.

9. *Id.*; see also Paul J. Heald, *Optimal Remedies for Patent Infringement: A Transactional Model*, 45 HOUS. L. REV. 1165, 1197 (2008) ("*Seagate* made clear that there is no affirmative duty on the part of an exploiting firm to search for a patent, nor any duty to search for advice from counsel on the validity of a patent that is uncovered if a search is done.>").

10. See *infra* notes 98-104 and accompanying text.

comprehensive empirical study of *Seagate's* actual impact on patent litigation.

This Article seeks to fill that gap with an empirical study of willful patent infringement and enhanced-damages decisions in the district courts for an approximately six-year period—three years before and three years after the *Seagate* decision. The data gathered from this study reveal several surprising results. In particular, predictions that *Seagate* would have a dramatic impact on willfulness findings in the district courts apparently were incorrect, as willfulness was found only about 10% less often after *Seagate*,¹¹ and this relatively small change was not statistically significant.¹²

Furthermore, judges and juries appear to reach different decisions under *Seagate's* “objective recklessness” standard. At trial, juries found willful infringement at similar rates both before and after *Seagate*.¹³ In contrast, judges found willfulness only a small fraction of the time after *Seagate*, as compared to a majority of the time before *Seagate*.¹⁴ However, when judges do find willfulness, they almost always award enhanced damages,¹⁵ and the amount of enhancement is usually larger than when a jury finds willfulness.¹⁶

This Article also evaluates the impact of several common factors on willfulness findings after *Seagate*. From the collected data, a “substantial” or “legitimate” defense to infringement is the most significant predictor of a finding of no willfulness.¹⁷ In contrast, evidence of copying by the accused infringer is highly correlated with willfulness.¹⁸ Surprisingly, however, neither opinions of counsel nor evidence that the accused infringer had attempted to “design around” the patent were statistically significant in willfulness decisions.¹⁹ In addition, whether a patent-in-suit has been reexamined by the U.S. Patent and Trademark Office (“PTO”) appears to have little impact on willfulness.²⁰ Finally, bifurcation of willfulness at trial also does not have a statistically significant impact on willfulness.²¹

Part II explains in greater detail the role willful infringement and enhanced damages play in patent litigation. It also recounts the Federal Circuit’s evolving standards governing willfulness, from *Underwater Devices* through *Seagate*. Part III describes the research questions addressed in this

11. See *infra* Part IV.A.2 and Table 1.

12. See *infra* Part IV.A.2 and Table 1.

13. See *infra* Part IV.A.3.

14. See *infra* Part IV.A.3.

15. See *infra* Part IV.C.2 and Table 7.

16. See *infra* Part IV.C.3 and Table 9.

17. See *infra* Part IV.B.2.

18. See *infra* Part IV.B.3.

19. See *infra* Parts IV.B.1 and IV.B.4.

20. See *infra* Part IV.B.5.

21. See *infra* Part IV.B.6.

Article and the methodology used to answer them. Finally, Part IV reports on the study's results and offers some preliminary conclusions.

II. WILLFUL PATENT INFRINGEMENT

A. POTENTIAL CONSEQUENCES OF A WILLFULNESS FINDING

Patent infringement “is a strict liability offense,”²² and thus an accused infringer can be held liable for unintentional or accidental infringement.²³ Despite this, an accused infringer's intent often plays an important role in patent litigation. Section 284 of the Patent Act permits the trial court, at its discretion, to award a successful patentee up to three times the amount of compensatory damages assessed by the finder of fact.²⁴ Although willfulness is not explicitly mentioned in § 284, the Federal Circuit has interpreted this statute to require a “finding of willful infringement [a]s a prerequisite to the award of enhanced damages.”²⁵

As a result, the possibility of a willfulness finding can significantly affect a patent dispute. The Federal Circuit has explained that willfulness serves as “an economic deterrent to the tort of infringement.”²⁶ In litigation, patentees commonly assert a claim of willful infringement.²⁷ This threat can cause potential infringers to take various actions to prevent a willfulness finding, including obtaining an opinion of counsel that it does not infringe

22. *Jurgens v. CBK, Ltd.*, 80 F.3d 1566, 1576 n.2 (Fed. Cir. 1996) (citing *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1527 (Fed. Cir. 1995) (en banc)).

23. See, e.g., *Blair v. Westinghouse Electric Corp.*, 291 F. Supp. 664, 670 (D.D.C. 1968) (“It is, of course, elementary that [a patent] infringement may be entirely inadvertent and unintentional and without knowledge of the patent.”). See generally Roger D. Blair & Thomas F. Cotter, *Strict Liability and Its Alternatives in Patent Law*, 17 BERKELEY TECH. L.J. 799, 803–04 (2002).

24. 35 U.S.C. § 284 (2006).

25. *i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 858 (Fed. Cir. 2010), *aff'd on other grounds*, 131 S. Ct. 2238 (2011); see also *Graco, Inc. v. Binks Mfg. Co.*, 60 F.3d 785, 792 (Fed. Cir. 1995) (“Willfulness of the infringement is the sole basis for the court's exercise of its discretion to enhance damages under [§] 284.”); *Beatrice Foods Co. v. New England Printing & Lithographing Co.*, 923 F.2d 1576, 1579 (Fed. Cir. 1991) (“Under our cases, enhanced damages may be awarded only as a penalty for an infringer's increased culpability, namely willful infringement . . .”). This view, however, is not unanimous among members of the Federal Circuit. In a concurring opinion in *Seagate*, Judges Gajarsa and Newman argued that the “court should not continue to read a willfulness requirement into section 284[] to support the enhancement of damages,” although they believed willfulness was still a “relevant consideration” to awarding such damages. *In re Seagate Tech., LLC*, 497 F.3d 1360, 1384 (2007) (en banc) (Gajarsa, J., concurring), *cert. denied*, 552 U.S. 1230 (2008).

26. *Rite-Hite Corp. v. Kelley Co.*, 819 F.2d 1120, 1126 (Fed. Cir. 1987).

27. See Moore, *supra* note 6, at 232 (finding that willfulness was asserted by the patentee in 92% of cases). One important exception is *Hatch–Waxman* litigation, where the Federal Circuit has held that the “mere filing of an ANDA [abbreviated new drug application] cannot constitute grounds for a willful infringement” because such a filing is merely an “artificial act of infringement for purposes of establishing jurisdiction in the federal courts.” *Glaxo Grp., Ltd. v. Apotex, Inc.*, 376 F.3d 1339, 1349–51 (Fed. Cir. 2004).

or that the asserted claims are invalid,²⁸ attempting to design around the patent's claims,²⁹ or settling litigation for amounts exceeding what the patentee could have obtained in *ex ante* negotiations.³⁰ The prospect of enhanced damages is particularly powerful in light of recent compensatory damages awards exceeding \$100 million, raising the possibility of an enhancement in the range of hundreds of millions of dollars.³¹

Further, a court can award attorney's fees for willful infringement. Under § 285, willful infringement qualifies as an "exceptional case[]" justifying the award of attorney's fees to a prevailing patent holder.³² According to a 2009 survey by the American Intellectual Property Law Association ("AIPLA"), in patent suits where \$1 million to \$25 million was at stake, the average costs of litigation—the majority of which is attorney's fees—were over \$2.7 million.³³ For cases with over \$25 million at issue, average litigation costs were even higher—over \$6 million.³⁴ In some cases, the attorney's fees awarded under § 285 can be equal to, or greater than, the amount of compensatory damages.³⁵

28. *SRI Int'l, Inc. v. Advanced Tech. Labs., Inc.*, 127 F.3d 1462, 1465 (Fed. Cir. 1997) (explaining that, prior to *Seagate*, an important factor for willfulness findings was "whether the adjudged infringer relied on legal advice" regarding noninfringement, invalidity, or unenforceability of the patent-in-suit). See generally Mark A. Lemley & Ragesh K. Tangri, *Ending Patent Law's Willfulness Game*, 18 BERKELEY TECH. L.J. 1085 (2003) (explaining the importance of opinions of counsel in deciding willfulness pre-*Seagate* and the problems caused by disclosure of such opinions).

29. *SRI Int'l*, 127 F.3d at 1465 (explaining that "attempts to design around and avoid the patent . . . should be taken into account" in determining willfulness).

30. See Scott Baker, *Can the Courts Rescue Us from the Patent Crisis?*, 88 TEX. L. REV. 593, 598 (2010) (reviewing DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* (2009)) (arguing that some patentees "sue[] and use[] the threat of a punitive remedy," such as "treble damages for willful infringement, to extract a settlement that exceeds what it would have gotten if it licensed its patent *ex ante*").

31. For example, in *i4i Ltd. Partnership v. Microsoft Corp.*, a jury in the Eastern District of Texas awarded \$200 million to the patentee and found that Microsoft had willfully infringed. 598 F.3d 831, 839 (Fed. Cir. 2010), *aff'd on other grounds*, 131 S. Ct. 2238 (2011). The district court awarded an additional \$40 million in additional enhanced damages—a 20% increase—instead of the maximum \$400 million (\$600 million total) that it could have imposed. *Id.* Both the willfulness finding and the enhanced-damages award were upheld by the Federal Circuit. *Id.* at 858–60; see also Christopher B. Seaman, *Reconsidering the Georgia-Pacific Standard for Reasonable Royalty Patent Damages*, 2010 BYU L. REV. 1661, 1663–65 (listing other large damage awards).

32. 35 U.S.C. § 285 (2006); *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1582 (Fed. Cir. 1992); see also JOHN W. SCHLICHER, 2 PATENT LAW, LEGAL AND ECONOMIC PRINCIPLES § 9:55 (2d ed. 2007) (explaining that "[w]illful infringement is a sufficient basis for finding a case exceptional" under § 285).

33. AM. INTELLECTUAL PROP. LAW ASS'N, AIPLA REPORT OF THE ECONOMIC SURVEY I-155 (2011).

34. *Id.*

35. See, e.g., *Wordtech Sys., Inc. v. Integrated Network Solutions, Inc.*, No. 2:04-cv-01971-MCE-EFB, 2009 WL 981843 (E.D. Cal. Apr. 13, 2009) (awarding approximately \$488,000 in attorney's fees after a jury awarded \$250,000 in compensatory damages to the patentee); see also

B. EVOLVING STANDARDS FOR WILLFULNESS

The doctrine of willful patent infringement has undergone numerous changes over the past three decades. This section describes the evolution of the standard for proving willfulness from the “affirmative duty of due care” to *Seagate’s* “objective recklessness” standard.

1. *Underwater Devices*: The Affirmative Duty of Due Care

In 1982, Congress passed the Federal Courts Improvement Act,³⁶ which created the Federal Circuit and gave it exclusive appellate jurisdiction over nearly all patent litigation. The purpose of this new appellate court was to bring uniformity and consistency to patent law and help “manage” its development.³⁷

In *Underwater Devices Inc. v. Morrison-Knudsen Co.*, decided in 1983, the Federal Circuit swiftly asserted its newfound authority and established a national standard for willful patent infringement.³⁸ In that case, an individual inventor named Robley obtained two patents for laying underwater pipes.³⁹ The patents were assigned to Underwater Devices, which had a practice of informing prospective bidders for construction contracts on underwater pipelines that it owned the Robley patents and would license them to all bidders on equal terms.⁴⁰

Morrison-Knudsen (“M-K”), one of the world’s largest engineering and construction firms at the time,⁴¹ bid on an underwater-sewer project in Sand Island, Hawaii. Underwater Devices offered to license M-K the Robley patents for \$200,000.⁴² Instead of taking a license, M-K obtained a short

Order Re Precor’s Motion for Attorneys’ Fees & Costs & Related Pleadings, *Precor Inc. v. Life Fitness*, No. C94-1586C (W.D. Wash. Apr. 22, 2000) (awarding slightly over \$5 million in attorney’s fees), *vacated and remanded*, 13 F. App’x 913 (Fed. Cir. 2001); Amended Judgment on Complaint and Counterclaim, *Precor Inc. v. Life Fitness*, No. C94-1586C (W.D. Wash. Nov. 8, 1999) (awarding \$5.25 million in compensatory damages), *vacated and remanded*, 13 F. App’x 913 (Fed. Cir. 2001).

36. Pub. L. No. 97-164, 96 Stat. 50 (1982).

37. See, e.g., S. REP. NO. 97-275, at 14–16 (1981), *reprinted in* 1981 U.S.C.C.A.N. 11, 14–15; H.R. REP. NO. 97-312, at 16–24 (1981); see also R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105, 1115–16 (2004) (explaining that “the Federal Circuit’s exclusive appellate jurisdiction over the patent law” was intended to make the court “act as the manager and developer of the patent law” and develop “a clearer, more coherent, and more predictable patent doctrine”).

38. *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).

39. *Id.* at 1382. The patents covered both the method and apparatus for laying such pipes. *Id.*

40. *Id.* at 1384.

41. See *Morrison Knudson Corporation*, FUNDING UNIVERSE, <http://www.fundinguniverse.com/company-histories/Morrison-Knudsen-Corporation-Company-History.html> (last visited Oct. 8, 2011).

42. *Underwater Devices*, 717 F.2d at 1384.

written opinion—only eight sentences long—from its in-house counsel asserting that the Robley patents were invalid in light of a prior publication and recommending M-K “refuse to even discuss the payment of a royalty” unless Underwater Devices sued.⁴³

In November 1974, Underwater Devices withdrew its offer and filed a complaint for patent infringement.⁴⁴ At trial, the district court found M-K had willfully infringed the patents and tripled the \$200,000 reasonable royalty award based on M-K’s failure to license the patents and awarded tripled damages.⁴⁵

On appeal, the Federal Circuit affirmed.⁴⁶ It explained that:

[w]here . . . 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. Such an affirmative duty includes, inter alia, the duty to seek and obtain competent legal advice from counsel before the initiation of any possible infringing activity.⁴⁷

The Federal Circuit held that while an opinion of counsel was “not dispositive of the willfulness inquiry,” it was “crucial to the analysis.”⁴⁸ It concluded that the advice rendered by M-K’s in-house lawyer fell far short of satisfying this “affirmative duty of due care.” It found that the opinion contained only “bald, conclusory and unsupported remarks regarding validity and infringement of the Robley patents” and thus was “not legal advice upon which [M-K] was justified in relying.”⁴⁹

In subsequent decisions, an alleged infringer was required to obtain or disclose an opinion of counsel regarding infringement to satisfy this “affirmative duty of due care.” Failure to do so would result in a negative inference. Specifically, under the “adverse inference” rule, an infringer’s failure to obtain and disclose an opinion “would warrant the conclusion that

43. *Id.* at 1385.

44. *Id.*

45. *Id.* at 1386.

46. *Id.* at 1389. The Federal Circuit has further explained that “[s]ince the issue of willfulness not only raises issues of reasonableness and prudence, but is often accompanied by questions of intent, belief, and credibility, appellate review requires appropriate deference to the special role of the trial court in making such determinations.” *SRI Int’l, Inc. v. Advanced Tech. Labs., Inc.*, 127 F.3d 1462, 1465 (Fed. Cir. 1997).

47. *Underwater Devices*, 717 F.2d at 1389–90 (internal citations omitted).

48. *In re Seagate Tech., LLC*, 497 F.3d 1360, 1369 (Fed. Cir. 2007) (en banc), cert. denied, 552 U.S. 1230 (2008); see also *Electro Med. Sys., S.A. v. Cooper Life Scis., Inc.* 34 F.3d 1048, 1056 (Fed. Cir. 1994) (“Possession of a favorable opinion of counsel is not essential to avoid a willfulness determination; it is only one factor to be considered, albeit an important one.”); JOHN SKENYON ET AL., *PATENT DAMAGES LAW & PRACTICE* § 4:19 (2009) (explaining that before *Seagate*, “failure to obtain and follow an opinion of counsel often result[ed] in a finding of willful infringement”).

49. *Underwater Devices*, 717 F.2d at 1390.

[the purported infringer] either obtained no advice from counsel[,] or did so and was advised that its [activities] would be an infringement of valid U.S. patents.”⁵⁰ While this presumption was theoretically rebuttable at trial, in practice it was often highly persuasive.⁵¹ Not surprisingly, then, the adverse-inference rule “increased the pressure on an alleged infringer to produce [an] opinion of counsel” at trial.⁵²

Furthermore, after *Underwater Devices*, subsequent Federal Circuit decisions suggested that willfulness required something less than intentional or deliberate infringement.⁵³ For instance, in *Rite-Hite Corp. v. Kelley Co.*, it explained: “Willfulness’ in infringement, as in life, is not an all-or-nothing trait, but one of degree. It recognizes that infringement may range from unknowing, or accidental, to deliberate, or reckless, disregard of a patentee’s legal rights.”⁵⁴

Similarly, in *State Industries, Inc. v. Mor-Flo Industries, Inc.*, the Federal Circuit held that “[t]he standard for proving willfulness” was whether an accused infringer had “prudently conduct[ed] himself with any confidence that a court might hold the patent invalid or not infringed.”⁵⁵ “Actual knowledge” of the patent-in-suit was not required⁵⁶—a statement at odds with the traditional understanding of “willful” in tort law, which requires disregarding a known risk of a highly likely result.⁵⁷

50. *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 1580 (Fed. Cir. 1986), *overruled by* *Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337 (Fed. Cir. 2004); *see also* *Fromson v. W. Litho Plate & Supply Co.*, 853 F.2d 1568, 1572–73 (Fed. Cir. 1988), *overruled by* *Knorr-Bremse*, 383 F.3d 1337.

51. Lemley & Tangri, *supra* note 28, at 1091–92 (explaining that the adverse-inference rule was “likely to have a strong impact on a jury”); Shamita D. Etienne-Cummings, *The Utility of Opinion of Counsel*, in *PATENT LITIGATION 2009*, at 125, 128 (PLI Intellectual Prop., Course Handbook Ser. No. G-983, 2009) (“Such adverse inferences were often the ‘deathblow’ to defendants attempting to avoid increased damage awards.”).

52. Justin P. Huddleson, Note, *Objectively Reckless: A Semi-Empirical Evaluation of In re Seagate*, 15 B.U.J. SCI. & TECH. L. 102, 110 (2009).

53. *See* William F. Lee & Lawrence P. Cogswell, III, *Understanding and Addressing the Unfair Dilemma Created by the Doctrine of Willful Patent Infringement*, 41 HOUS. L. REV. 393, 424 (2004) (in a pre-*Seagate* article, explaining that it was “unclear whether a finding of willful infringement requires a determination that the defendant had intentionally infringed or whether a showing of recklessness or even negligence would suffice” (footnote omitted)).

54. *Rite-Hite Corp. v. Kelley Co.*, 819 F.2d 1120, 1125–26 (Fed. Cir. 1987).

55. *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1581 (Fed. Cir. 1989) (internal quotation marks omitted); *see also* *Hall v. Aqua Queen Mfg., Inc.*, 93 F.3d 1548, 1555 (Fed. Cir. 1996) (applying the same standard set forth in *State Industries, Inc.*).

56. *State Indus.*, 883 F.2d at 1581. *But see* *State Indus., Inc. v. A.O. Smith Corp.*, 751 F.2d 1226, 1236 (Fed. Cir. 1985) (“To willfully infringe a patent, the patent must exist and [the infringer] must have knowledge of it.” (emphasis removed)).

57. *See, e.g.*, WILLIAM L. PROSSER, *HANDBOOK OF THE LAW OF TORTS* § 34 (1971) (explaining that willfulness exists in tort law when an “actor has intentionally done an act of an unreasonable character in disregard of a risk known to him or so obvious that he must be taken to have been aware of it, and so great as to make it highly probable that harm would follow” (footnote omitted)).

After *Underwater Devices* and its progeny, willful infringement was found in most cases that reached a decision on the issue. In an important study, then-Professor (now Federal Circuit Judge) Kimberly Moore determined that from 1983 to 2000, willfulness was found 68% of the time in jury trials and 53% of the time in bench trials.⁵⁸ Furthermore, she found that enhanced damages were imposed 95% of the time when a judge found willfulness, compared to only 63% of the time when a jury found willfulness.⁵⁹

2. *Knorr-Bremse* and *EchoStar*: The Interregnum

If an accused infringer offered an opinion of counsel to rebut a willfulness claim, it was required to waive attorney–client privilege for “all other communications relating to the same subject matter.”⁶⁰ The Federal Circuit required waiver for fairness reasons; specifically, “so that a party is prevented from disclosing communications that support its position while simultaneously concealing communications that do not.”⁶¹

Before *Seagate*, the scope of waiver was hotly contested in litigation and varied greatly district by district. For example, some courts limited waiver to documents actually communicated to the client,⁶² while others required disclosure of all information related to the opinion’s subject matter, even if the client had not received it.⁶³ There were also conflicts about the waiver’s timing; some cases limited waiver to communications and documents created before litigation,⁶⁴ but others extended waiver to include documents

58. Moore, *supra* note 6, at 237.

59. Kimberly A. Moore, *Judges, Juries, and Patent Cases—An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 399 n.134 (2000).

60. *Fort James Corp. v. Solo Cup Co.*, 412 F.3d 1340, 1349 (Fed. Cir. 2005); *see also* Danny Prati, Note, *In re Seagate Technology LLC: A Clean Slate for Willfulness*, 23 BERKELEY TECH. L.J. 47, 55 (2008) (“In patent litigation, assertion of the advice of counsel defense automatically waives [the attorney–client] privilege.”).

61. *Fort James Corp.*, 412 F.3d at 1349. As one district court explained: “Fundamental fairness compels the conclusion that a litigant may not use reliance on advice of counsel to support a claim or defense as a sword in litigation, and also deprive the opposing party the opportunity to test the legitimacy of that claim by asserting the attorney–client privilege or work-product doctrine as a shield.” *Aspex Eyewear, Inc. v. E’Lite Optik, Inc.*, 276 F. Supp. 2d 1084, 1092 (D. Nev. 2003).

62. *See, e.g., Ropak Corp. v. Plastikan, Inc.*, No. 04 C 5422, 2006 WL 1005406, at *6 (N.D. Ill. Apr. 17, 2006) (explaining that the court “will take a narrow approach to the scope of the waiver” and ordered disclosure of only “the ‘opinion of counsel’ documents that were communicated or given to” the accused infringer).

63. *See, e.g., McKesson Info. v. Trizetto Grp., Inc.*, No. 04-1258-SLR, 2005 WL 2290191, at *1 (D. Del. Sept. 20, 2005) (“The scope of the waiver is not limited to what was communicated to or from counsel, but extends to all information possessed by the alleged infringer that relates to the subject matters of the opinion letters.”).

64. *See, e.g., Motorola, Inc. v. Vosi Techs., Inc.*, No. 01 C 4182, 2002 WL 1917256, at *2 (N.D. Ill. Aug. 19, 2002); *Dunhall Pharm., Inc. v. Discus Dental, Inc.*, 994 F. Supp. 1202, 1206

created through trial.⁶⁵ Finally, there was a split in authority regarding which attorney's communications were covered by waiver. Some courts waived attorney-client privilege for an accused infringer's trial counsel, even if a separate firm had provided the opinion;⁶⁶ others barred production of attorney work-product material created by trial counsel;⁶⁷ and yet others adopted a "middle ground" by extending waiver "only to those trial counsel work product materials . . . communicated to the client."⁶⁸

As a result, the waiver requirement created a "Hobson's choice" for many accused infringers: (1) mount an advice of counsel defense against willfulness but be compelled to disclose (at least some) privileged communications containing sensitive information; or (2) maintain privilege and receive a harmful adverse-inference instruction.⁶⁹ As a result, despite "strong structural incentives to rely on the advice of counsel at trial," accused infringers often were fearful to do so because of the uncertainty about disclosing potentially harmful information that might undercut their case at trial.⁷⁰

In September 2004, the Federal Circuit attempted to address this dilemma in *Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.* ("*Knorr-Bremse*") by overruling the adverse-inference rule.⁷¹ In an en banc decision, the court recognized this rule resulted in "inappropriate burdens on the attorney-client relationship" and undermined "open and confident relationships between client and attorney" by requiring disclosure to prevent an adverse inference.⁷² Because of these costs, the court held it was inappropriate "to draw a similar adverse inference from failure to consult

(C.D. Cal. 1998); *Kelsey-Hayes Co. v. Motor Wheel Corp.*, 155 F.R.D. 170, 172 (W.D. Mich. 1991).

65. See, e.g., *Akeva L.L.C. v. Mizuno Corp.*, 243 F. Supp. 2d 418, 423 (M.D.N.C. 2003) ("[O]nce a party asserts the defense of advice of counsel, this opens to inspection the advice received during the entire course of the alleged infringement. Consequently, the waiver of attorney-client privilege or work product protection covers all points of time, including up through trial."); *Chiron Corp. v. Genentech, Inc.*, 179 F. Supp. 2d 1182, 1188 (E.D. Cal. 2001) ("[A]ll communications, both pre and post-complaint filing, should be disclosed.").

66. See, e.g., *Akeva*, 243 F. Supp. 2d at 422-24; *Chiron*, 179 F. Supp. 2d at 1188.

67. See, e.g., *Aspex Eyewear, Inc. v. E'Lite Optik, Inc.*, 276 F. Supp. 2d 1084, 1095 (D. Nev. 2003) ("The court will not compel defendant's current litigation counsel to produce work-product materials . . .").

68. *Intex Recreation Corp. v. Metalast, S.A.*, No. CIV 01-1213-JDB, 2005 WL 5099032, at *5 (D.D.C. Mar. 2, 2005).

69. See, e.g., *Pfizer Inc. v. Novopharm Ltd.*, No. 00 C 1475, 2000 WL 1847604, at *2 (N.D. Ill. Dec. 14, 2000) (citing *Quantum Corp. v. Tandon Corp.*, 940 F.2d 642, 643-44 (Fed. Cir. 1991)); see also Prati, *supra* note 60, at 57-58.

70. See Lemley & Tangri, *supra* note 28, at 1099.

71. *Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337, 1344-45 (Fed. Cir. 2004) (en banc); see also *supra* text accompanying notes 50-52 (explaining the adverse-inference rule).

72. *Knorr-Bremse*, 383 F.3d at 1343-44.

counsel.”⁷³ However, *Knorr-Bremse* did not fully resolve the waiver dilemma because obtaining and disclosing an opinion of counsel remained one way—if not the best way—to establish that an alleged infringer had discharged its “affirmative duty of due care.”⁷⁴

The following year, the Federal Circuit established a broad scope of waiver for attorney–client privilege in *In re EchoStar Communications Corp.*⁷⁵ It held that when an alleged infringer relied on advice of counsel as a defense to willfulness, “the waiver applies to all other communications relating to the same subject matter,” including communications with outside counsel not involved with the opinion.⁷⁶ For work-product material, the accused infringer had to produce all documents discussing or referencing client communications, but not “opinion” work product that had not been communicated to the client.⁷⁷

Thus, *EchoStar* placed trial counsel for patent defendants in a difficult position, as the communication of legal analyses and trial strategy to the client could make them discoverable.

3. *In re Seagate*: The Rise of Objective Recklessness

In the face of continuing criticism from academics and patent litigators,⁷⁸ as well as legislative efforts to limit willfulness,⁷⁹ in January 2007,

73. *Id.* at 1345.

74. *See id.* at 1345–46 (quoting *L.A. Gear Inc. v. Thom McAn Shoe Co.*, 988 F.2d 1117, 1127 (Fed. Cir. 1993)). One district expressed this dilemma as follows:

We do not believe . . . that *Knorr-Bremse* completely eliminated the prejudice to a party facing a Quantum dilemma. Although the failure to obtain an exculpatory opinion of counsel no longer provides an adverse inference or presumption that the opinion was unfavorable, there continues to be an affirmative duty of due care to avoid infringement of the known patent rights of others. Therefore, an accused infringer still must choose between waiving its attorney-client privilege to disclose a favorable opinion letter from counsel, which would weigh in its advantage in assessing the “totality of the circumstances” in a willful infringement charge, and maintaining its attorney-client privilege, thus undercutting its defense.

Trading Techs. Int’l, Inc. v. eSpeed, Inc., 431 F. Supp. 2d 834, 839 (N.D. Ill. 2006) (internal quotation marks and citation omitted); *see also* Christopher Ryan Lanks, Note, *In Re Seagate: Effects and Future Development of Willful Patent Infringement*, 111 W. VA. L. REV. 607, 616 (2009) (explaining that, after *Knorr-Bremse*, “an alleged infringer did not have to produce an opinion of counsel, but it was still the best type of evidence to defend against willful infringement”).

75. *In re EchoStar Commc’ns Corp.*, 448 F.3d 1294 (Fed. Cir. 2006), *cert. denied*, 549 U.S. 1096 (2006).

76. *Id.* at 1299 (quoting *Fort James Corp. v. Solo Cup Co.*, 412 F.3d 1340, 1349 (Fed. Cir. 2005)) (internal quotation mark omitted). *EchoStar* relied on an opinion by in-house counsel; its outside counsel had provided additional advice, but *EchoStar* had elected not to rely on it. *Id.* at 1297.

77. *Id.* at 1302–04.

78. *See* Timothy R. Holbrook, *Possession in Patent Law*, 59 SMU L. REV. 123, 143 (2006) (explaining that the current “willfulness doctrine . . . creates a huge barrier to the effective operation of the patent system’s disclosure function”); William F. Lee et al., *The Doctrine of*

the Federal Circuit granted en banc review of a petition for writ of mandamus by Seagate Technology, LLC (“Seagate”).⁸⁰ In the district court, Seagate had announced that it intended to rely on three letters by Seagate’s outside opinion (nontrial) counsel to defend itself against a claim of willfulness, and it produced opinion counsel’s work product relating to the opinions.⁸¹ However, the patentee moved to compel production of all attorney–client communications and work product related to the opinions, including those created by Seagate’s trial counsel.⁸² The district court held that Seagate’s reliance on these opinions waived attorney–client privilege and work-product protection regarding their subject matter—infringement, invalidity, and unenforceability—for all of Seagate’s attorneys, including outside trial counsel.⁸³

The Federal Circuit stayed the trial court’s discovery order and ordered an en banc hearing on three questions:

1. Should a party’s assertion of the advice of counsel defense to willful infringement extend waiver of the attorney–client privilege to communications with that party’s trial counsel? *See In re EchoStar Comm’n Corp.*, 448 F.3d 1294 (Fed. Cir. 2006).
2. What is the effect of any such waiver on work-product immunity?
3. Given the impact of the statutory duty of care standard announced in *Underwater Devices, Inc. v. Morrison-Knudsen Co.*, 717 F.2d 1380 (Fed. Cir. 1983), on the issue of waiver of attorney–client privilege, should this court reconsider the decision in *Underwater Devices* and the duty of care standard itself?⁸⁴

Addressing the final question first, the Federal Circuit unanimously overruled the “affirmative duty of due care” standard first announced in *Underwater Devices*. After reviewing the history of willful infringement, it acknowledged that the “duty of care announced in *Underwater Devices* sets a lower threshold for willful infringement that is more akin to negligence.”⁸⁵

Willful Patent Infringement After Knorr-Bremse: Practical Problems & Recommendations, 7 SEDONA CONF. J. 169, 169 (2006) (“In *Knorr-Bremse* . . . the Federal Circuit changed the law of willful patent infringement but did not eliminate the practical dilemmas facing parties seeking to defend against charges of willful patent infringement.”); Lee & Cogswell, *supra* note 53, at 430–32; Lemley & Tangri, *supra* note 28, at 1099–108; Kevin J. Kelly, Comment, *Placing the Burden Back Where It Belongs: A Proposal To Eliminate the Affirmative Duty from Willful Infringement Analyses*, 4 J. MARSHALL REV. INTELL. PROP. L. 509, 520–32 (2005).

79. See S. 1145, 110th Cong. (2007); H.R. 1908, 110th Cong. (2007).

80. *In re Seagate Tech., LLC*, 214 F. App’x 997 (Fed. Cir. 2007).

81. *In re Seagate Tech., LLC*, 497 F.3d 1360, 1366 (Fed. Cir. 2007) (en banc), *cert. denied*, 552 U.S. 1230 (2008).

82. *Id.*

83. *Id.* at 1366–67.

84. *Id.* at 1367 (quoting *In re Seagate*, 214 F. App’x at 997).

85. *Id.* at 1371.

This burden of proof, it explained, failed to comport with “the general understanding of willfulness in the civil context” and was inconsistent with recent Supreme Court decisions.⁸⁶ In other contexts, including copyright infringement, the Federal Circuit recognized that “willful” conduct generally required at least reckless behavior.⁸⁷ Consequently, to prove willfulness, it held a patentee must make “at least a showing of objective recklessness” by the accused infringer.⁸⁸ It articulated a two-part test for demonstrating willfulness:

[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.⁸⁹

Seagate also changed willful patent infringement in three other ways. First, it placed the burden of proof for establishing willfulness squarely on the patentee, rather than on the accused infringer. Under the previous “affirmative duty of due care” standard, when the alleged infringer received notice of a patent, it generally had an obligation to obtain an opinion of counsel to satisfy this duty.⁹⁰ As Judge Dyk explained in *Knorr-Bremse*, this duty “effectively shift[ed] the burden of proof on the issue of willfulness from the patentee to the infringer.”⁹¹ In contrast, after *Seagate*, “[t]he burden is on the patentee to prove willful infringement.”⁹²

Second, the Federal Circuit’s abandonment of the “affirmative duty of due care” eliminated the requirement that an accused infringer must produce an opinion of counsel at trial.⁹³ However, this did not mean that

86. *Id.* (citing *McLaughlin v. Richland Shoe Co.*, 486 U.S. 128 (1988); *Safeco Ins. Co. of Am. v. Burr*, 551 U.S. 47 (2007)).

87. *Id.* at 1370–71.

88. *Id.* at 1371.

89. *Id.* (internal citation omitted).

90. *See, e.g.*, *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1190 (Fed. Cir. 1998) (stating that an accused infringer “usually” had to obtain an opinion of counsel to avoid willfulness); *Spindelfabrik Suessen-Schurr Stahlecker & Grill GmbH v. Schubert & Salzer Maschinenfabrik Aktiengesellschaft*, 829 F.2d 1075, 1084 (Fed. Cir. 1987) (explaining that the affirmative duty of due care “will normally entail the obtaining of competent legal advice before engaging in any potentially infringing activity or continuing such activity”), *cert. denied*, 484 U.S. 1063 (1988); *Lemley & Tangri*, *supra* note 28, at 1091–92 & n.13.

91. *Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337, 1349 (Fed. Cir. 2004) (en banc) (Dyk, J., concurring in part and dissenting in part).

92. *Kellogg v. Nike, Inc.*, 592 F. Supp. 2d 1166, 1171 (D. Neb. 2008).

93. *Seagate*, 497 F.3d at 1371 (“Because we abandon the affirmative duty of due care, we also reemphasize that there is no affirmative obligation to obtain opinion of counsel.”).

opinions of counsel suddenly became irrelevant to willfulness. Rather, *Seagate* explained that an accused infringer's pre-litigation opinion of counsel on infringement or validity "may preclude [it]s conduct from being considered reckless."⁹⁴

Third, after *Seagate*, if an accused infringer relies on an opinion of counsel, the waiver of attorney-client privilege typically does not extend to trial counsel. The Federal Circuit explained that, "as a general proposition, . . . asserting the advice of counsel defense and disclosing opinions of opinion counsel do not constitute waiver of the attorney-client privilege for communications with trial counsel."⁹⁵ This overruled some district court decisions after *EchoStar* that had reached the opposite conclusion. Similarly, work product created by trial counsel generally would not be subject to disclosure "absent exceptional circumstances."⁹⁶

III. ISSUES AND METHODOLOGY

A. RESEARCH QUESTIONS

After *Seagate*, many observers predicted the new "objective recklessness" standard would have a major impact on willfulness.⁹⁷ For example, some patent litigators contended that *Seagate* created an "extraordinarily high burden" for proving willful infringement,⁹⁸ that would "almost certainly . . . make proof of willful infringement much more difficult for patentees,"⁹⁹ and that "only the clearest case[s] of infringement and validity would seem to satisfy" the new standard.¹⁰⁰ Other commentators argued that *Seagate* set "[t]he bar for showing willful infringement . . . stunningly high,"¹⁰¹ and as a result, willfulness would be "exceptionally difficult to prove"¹⁰² and "the

94. *Id.* at 1374.

95. *Id.*

96. *Id.* at 1375.

97. See JANICE M. MUELLER, *PATENT LAW* 511 (3d ed. 2009) ("The *Seagate* standard significantly raised the bar on willfulness, making it more difficult for a patentee to establish than under the Federal Circuit's previous standard.")

98. SIMPSON THACHER & BARTLETT LLP, *IN RE SEAGATE: A NEW STANDARD FOR WILLFUL PATENT INFRINGEMENT* 12 (2007), available at <http://www.stblaw.com/content/publications/pub629.pdf>.

99. Monte Cooper & Don Daybell, *In re Seagate Revises Patent Law on Willfulness*, ORRICK, HERRINGTON & SUTCLIFFE, LLP (Aug. 23, 2007), <http://www.orrick.com/publications/item.asp?action=article&articleID=1246>.

100. SIMPSON THACHER & BARTLETT LLP, *supra* note 98, at 12.

101. Patent Hawk, *Waiving Under Willfulness*, PATENT PROSPECTOR (Aug. 22, 2007, 1:48 PM), http://www.patenthawk.com/blog/2007/08/waiving_under_willfulness_1.html.

102. Gene Quinn, *Why Open Source Stalls Innovation and Patents Advance It*, IPWATCHDOG (July 5, 2010, 6:23 PM), <http://www.ipwatchdog.com/2010/07/05/open-source-stalls-innovation/id=11506>.

awarding of enhanced damages in patent cases [would be] rare.”¹⁰³ Finally, several scholarly articles contended that *Seagate* would probably result in fewer willfulness findings.¹⁰⁴

To date, however, there has been no comprehensive study of *Seagate*'s actual impact on willfulness and enhanced damages in patent litigation. In addition, there has been no quantitative effort to determine the impact that common factors, such as legitimate defense(s) to infringement, copying, and opinions of counsel, may have on willfulness after *Seagate*.¹⁰⁵

This Article addresses these issues. First, it evaluates *Seagate*'s impact on willful infringement findings in the district courts. This includes how often willfulness is found, when willfulness is decided (the procedural posture), and whether juries and judges tend to reach different decisions. Second, it evaluates the effect of several common factors on willfulness decisions. Finally, it attempts to determine *Seagate*'s effect, if any, on enhanced-damages awards.

Empirical research is an appropriate tool to help answer these questions. Empirical studies use observations of data and statistical analysis to evaluate causal inference—that is, “whether one factor or set of factors leads to (or causes) some outcome.”¹⁰⁶ Over the past decade, intellectual property scholars—particularly in patent law—have extensively used empirical research methods to help understand how courts apply legal doctrine.¹⁰⁷

103. Saint-Gobain's Motion and Brief in Support of Its Motion for Summary Judgment of No Willful Infringement and for Protective Order at 8, *Gemtron Corp. v. Saint-Gobain Corp.*, No. 1:04-00387 (W.D. Mich. Feb. 26, 2008) (on file with author).

104. See, e.g., Carl G. Anderson et al., *Willful Patent Infringement: The First Year of the Post-Seagate Era*, 20 INTELL. PROP. & TECH. L.J. 11, 13 (2008) (“*Seagate* has raised the bar with respect to succeeding on a claim of willful infringement.”); B.D. Daniel, *Heightened Standards of Proof in Patent Infringement Litigation: A Critique*, 36 AIPLA Q.J. 369, 416 (2008) (arguing that “the proof required by *Seagate* will be difficult to meet”); Lanks, *supra* note 74, at 636–37 (contending that *Seagate* “makes it substantially harder to prove willful patent infringement” and that “most alleged infringers will . . . successfully defend against the willful infringement claim”); Prati, *supra* note 60, at 64 (concluding that *Seagate* “should result in fewer findings of willfulness”).

105. See Matthew Cook Bernstein, *Difficulties Prevailing on Willful Infringement Post-Seagate*, MINTZ LEVIN PATENT LITIGATION GROUP (MLGP) NEWSLETTER (Mintz Levin Cohn Ferris Glovsky & Popeo PC), May 2010, available at <http://www.mintz.com/newsletter/2010/Newsletters/0430-0510-NAT-IP/web.html>; Kurt M. Rogers et al., *Seagate: Trends Over the Last 18 Months*, LAW360.COM (Jan. 23, 2009), <http://www.bingham.com/Media.aspx?MediaID=8289>.

106. Lee Epstein & Gary King, *The Rules of Inference*, 69 U. CHI. L. REV. 1, 34–35 (2002); see also Kevin M. Clermont & Theodore Eisenberg, *Litigation Realities*, 88 CORNELL L. REV. 119, 125 (2002) (“Empirical methods are those that employ means for the systematic observation of experience in pursuit of inductive ends.”).

107. See, e.g., John R. Allison & Mark A. Lemley, *The (Unnoticed) Demise of the Doctrine of Equivalents*, 59 STAN. L. REV. 955 (2007); Barton Beebe, *An Empirical Study of U.S. Copyright Fair Use Opinions, 1978–2005*, 156 U. PA. L. REV. 549 (2008); Christian A. Chu, *Empirical Analysis of the Federal Circuit's Claim Construction Trends*, 16 BERKELEY TECH. L.J. 1075 (2001); Christopher

In particular, scholars have used empirical legal research to compare decisions before and after a landmark case to evaluate its impact on litigation outcomes.¹⁰⁸ It also can “allow[] scholars to verify or refute . . . claims about case law,”¹⁰⁹ such as “the impact of a new precedent, statute, or legal doctrine,”¹¹⁰ and can augment traditional doctrinal analysis “by identifying previously unnoticed patterns that warrant deeper study.”¹¹¹ Finally, empirical methods can help “study the factors that determine the outcomes of cases.”¹¹²

B. STUDY DESIGN

An original dataset was created for this study. The author attempted to identify all patent cases that decided willfulness from *Knorr-Bremse*, in September 2004, through July 2010. This represents almost six years of decisions divided about equally before and after *Seagate*.

No single source contained a complete and easily accessible list of decisions on willful infringement. Therefore, several different sources were used to create a comprehensive dataset. First, the author searched Westlaw databases of district-court decisions from September 2004 through *Seagate* in August 2007,¹¹³ and then from *Seagate* through July 2010.¹¹⁴ This was

A. Cotropia, *Nonobviousness and the Federal Circuit: An Empirical Analysis of Recent Case Law*, 82 NOTRE DAME L. REV. 911 (2007); Jay P. Kesan & Gwendolyn G. Ball, *How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, 84 WASH. U. L. REV. 237, 259 (2006); Moore, *supra* note 6, at 227; Kimberly A. Moore, *Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation?*, 79 N.C. L. REV. 889 (2001) [hereinafter Moore, *Forum Shopping*]; Moore, *supra* note 59, at 365; Lee Petherbridge, *On the Decline of the Doctrine of Equivalents*, 31 CARDOZO L. REV. 1371 (2010); Lee Petherbridge, *Patent Law Uniformity?*, 22 HARV. J.L. & TECH. 421 (2009); Lee Petherbridge & R. Polk Wagner, *The Federal Circuit and Patentability: An Empirical Assessment of the Law of Obviousness*, 85 TEX. L. REV. 2051 (2007); David L. Schwartz, *Courting Specialization: An Empirical Study of Claim Construction Comparing Patent Litigation Before Federal District Courts and the International Trade Commission*, 50 WM. & MARY L. REV. 1699 (2009); David L. Schwartz, *Practice Makes Perfect? An Empirical Study of Claim Construction Reversal Rates in Patent Cases*, 107 MICH. L. REV. 223 (2008); Wagner & Petherbridge, *supra* note 37.

108. See, e.g., Patricia W. Hatamyar, *The Tao of Pleading: Do Twombly and Iqbal Matter Empirically?*, 59 AM. U. L. REV. 553 (2010) (studying the impact of the Supreme Court’s decisions in *Bell Atlantic Corp. v. Twombly* and *Ashcroft v. Iqbal* on court rulings in Rule 12(b)(6) motions).

109. Mark A. Hall & Ronald F. Wright, *Systematic Content Analysis of Judicial Opinions*, 96 CALIF. L. REV. 63, 77 (2008) (explaining that empirical methods can help evaluate “the impact of a new precedent, statute, or legal doctrine”).

110. *Id.* at 91.

111. *Id.* at 87.

112. *Id.* at 94.

113. For this time period, the following Terms & Connectors search was run in the Westlaw District Courts Cases database (“DCT”): patent! /30 ((willful! /5 infringing!) “enhanced damages”) & da(aft 9/12/2004 & bef 8/20/2007).

114. For this time period, two searches were run: (1) a Terms & Connectors search in the Westlaw Federal IP – District Courts Decisions database (“FIP-DCT”): ((willful! /s infringing!)

followed by a search of Federal Circuit opinions, both published and unpublished, to identify any willfulness decisions potentially missed in district-court searches.¹¹⁵

Not all willfulness decisions result in a written opinion, however.¹¹⁶ To help identify these cases, databases of intellectual-property verdicts and settlements were searched in both Westlaw¹¹⁷ and LexisNexis.¹¹⁸ A Westlaw database of intellectual-property news stories was also searched.¹¹⁹ The author also reviewed all patent jury verdicts identified by Patstats.org, a resource on patent-litigation statistics created and maintained by the University of Houston Law Center's Institute for Intellectual Property and Information Law.¹²⁰

Finally, the Lex Machina database of intellectual-property litigation was searched to capture any willfulness decisions missed by the other sources. Lex Machina is a website originally created by the Intellectual Property Litigation Clearinghouse ("IPLC") at Stanford University¹²¹ and contains information on all patent-infringement litigation since January 1, 2000.¹²²

(enhanced! /s damag!) /p (patent "in re seagate" 284) & da(aft 8/20/2007 & bef 7/30/2010); and (2) a Terms & Connectors search in the Westlaw District Courts Cases database ("DCT") for pretrial motions under Federal Rule of Civil Procedure 12: ("12(b)(6)" or "12(c)" or "motion to strike" or "motion to dismiss") and patent w/200 willful! and Seagate & da(aft 8/20/2007 & bef 7/30/2010).

115. The following Terms & Connectors search was run in the Westlaw Federal Circuit Court of Appeals Cases ("CTAF") database: (willful! w/7 infring!) or "enhanced damages" or "increased damages".

116. For example, there may be no district-court opinion when a verdict of willfulness is entered after trial, but the parties settle the dispute before the district court rules on post-trial motions. *See, e.g.*, Verdict Form, Pioneer Corp. v. Samsung SDI Co., No. 2:06-CV-384 (DF) (E.D. Tex. Oct. 29, 2008) (jury verdict of willful infringement). Similarly, there may be no district-court opinion when the finder of fact determines there was no willfulness, and the patentee does not pursue judicial review (post-trial or appeal) of this decision. *See, e.g.*, Verdict Form, Power-One, Inc. v. Artesyn Techs., Inc., No. 2:05-CV-463 (E.D. Tex. Nov. 15, 2007) (jury verdict of no willful infringement); *see also* Power-One, Inc. v. Artesyn Techs., Inc., 599 F.3d 1343, 1346 (Fed. Cir. 2010) (verdict of no willful infringement not appealed by patentee).

117. The following Terms & Connectors search was run in the Westlaw Intellectual Property Combined Jury Verdicts and Settlement Summaries (IPJV) database: patent w/50 ((willful! w/15 infring!) or "enhanced damages") & da(aft 01/01/2004).

118. The following Terms & Connectors search was run in the LexisNexis Jury Verdicts and Settlements, Combined ("ALLVER") database: patent w/75 ((willful! w/5 infring!) or "enhanced damages" or ((treble! or triple!) w/3 damage!)).

119. The following Terms & Connectors search was run in the Westlaw Intellectual Property News ("IPNEWS") database: patent w/50 willful! w/5 infring! w/75 (verdict or judgment or jury or judge) & da(aft 01/01/2004).

120. PATSTATS.ORG, <http://www.patstats.org> (last visited Oct. 6, 2011).

121. *The Genesis of Lex Machina*, LEX MACHINA, <http://lexmachina.com/about/genesis> (last visited Oct. 6, 2011).

122. *Need To Know?: Get Access*, LEX MACHINA, <http://lexmachina.com/database/features> (last visited Oct. 6, 2011).

The author used the website's instructions to search for grants or denials of willful infringement¹²³ for all U.S. District Courts.¹²⁴

From these sources, the author compiled a list of cases that reached a final decision on the merits regarding willfulness. A "final decision on the merits" existed when there was a final decision on willfulness in the district court and the issue had been contested by the parties. Obviously then, decisions on willfulness after both jury and bench trials were included in the dataset. Similarly, a "final decision on the merits" existed when willfulness was finally decided in a pretrial motion, such as a motion for summary judgment under Federal Rule of Civil Procedure 56.¹²⁵ The dataset also included decisions on motions to dismiss under Federal Rule of Civil Procedure 12(b)(6)¹²⁶ if these decisions resolved willfulness for that case—most commonly, if the motion was granted and the patentee did not reassert willfulness in an amended pleading.¹²⁷ Finally, entry of judgment as a matter of law ("JMOL"), either during or after trial, under Federal Rule of Civil Procedure 50 on willfulness also was a final decision on the merits.¹²⁸

In contrast, a finding of willfulness after entry of default judgment under Federal Rule of Civil Procedure 55¹²⁹ was not considered "on the merits" because the parties did not contest the issue. Therefore, all default judgments were excluded from the dataset.¹³⁰

Because the dataset included only district-court decisions, it is important to note this study did not attempt to evaluate willfulness decisions

123. *Lex Machina How-To Guide*, LEX MACHINA, <http://lexmachina.com/database/howto> (last visited Oct. 6, 2011).

124. The following parameters were used for Lex Machina's Advanced Search form (<http://lexmachina.com/search/form>): Search Terms - Any Words: "willful" or "willfulness"; Case Type: Patent; Case Event: Judgment or Verdict (required 2 separate searches, one for each Case Event); Event Date Range: 9/13/04-6/1/10.

125. FED. R. CIV. P. 56.

126. FED. R. CIV. P. 12(b)(6).

127. In contrast, decisions on Rule 12 motions that did not reach a final decision on willfulness—such as the denial of a Rule 12(b)(6) motion to dismiss a willfulness claim—were excluded from the dataset.

128. FED. R. CIV. P. 50. However, if a motion for a new trial was granted under Rule 59(a), the case would *not* qualify as a final decision on the merits (because the previous willfulness decision would have been vacated), *unless* there was a subsequent decision on willfulness after the new trial.

129. FED. R. CIV. P. 55.

130. Including these default judgments would have misleadingly skewed the study's results towards higher willfulness findings. Upon entry of default, the complaint's factual allegations relating to liability are deemed to be true. *See, e.g., Murray v. Lene*, 595 F.3d 868, 871 (8th Cir.), *cert. denied*, 131 S. Ct. 255 (2010). As a result, entry of a default judgment—typically because the accused infringer failed to answer the complaint—almost always resulted in a finding of willfulness. *See, e.g., P.S. Prods., Inc. v. Unique Cutlery, Inc.*, No. 4:09CV00664 SWW, 2010 WL 1980848 (E.D. Ark. May 13, 2010); *Crescent Servs., Inc. v. Mich. Vacuum Trucks, Inc.*, 714 F. Supp. 2d 425 (W.D.N.Y. 2010); *Harodite Indus., Inc. v. Astechnologies, Inc.*, No. 02-40114, 2008 WL 544615 (E.D. Mich. Feb. 27, 2008).

at the Federal Circuit level. In other words, if a jury found willful infringement at trial, but the Federal Circuit reversed on appeal, this would still be classified as a finding of willfulness.¹³¹ The author decided to focus on willfulness decisions at the district-court level because this is where most patent cases are finally resolved and because relatively few Federal Circuit decisions reach a different conclusion on willfulness compared to the district court.¹³²

From these sources, 309 cases were identified as reaching a final decision on the merits on willfulness between September 2004 and July 2010.¹³³ This represents approximately 1.9% of all patent cases filed during this time period.¹³⁴ Although this figure initially may appear low, it is important to note that the overwhelming majority of patent cases settle

131. See, e.g., *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1339 (Fed. Cir.), cert. denied, 555 U.S. 1070 (2008).

132. This is in part because willfulness is a question of fact and will not be overturned by the Federal Circuit unless the decision was clearly erroneous (if the district court was the finder of fact) or unsupported by substantial evidence (if the jury was the finder of fact). See, e.g., *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1374 (Fed. Cir. 2008); *ACCO Brands, Inc. v. ABA Locks Mfr. Co.*, 501 F.3d 1307, 1312 (Fed. Cir. 2007). But see *Spine Solutions, Inc. v. Medtronic Sofamor Danek USA, Inc.*, 620 F.3d 1305, 1319–20 (Fed. Cir. 2010) (reversing district court's denial of accused infringer's motion for JMOL of no willfulness).

133. Of these, 137 cases reached a final decision on willfulness before the Federal Circuit decided *Seagate* on August 20, 2007, and 172 reached a final decision on willfulness after *Seagate*, for a total of 309 cases. In three cases, there was an initial decision on willfulness, but this decision did not become "final" for a variety of reasons. See *Telecomm. Sys., Inc. v. Mobile 365, Inc.*, No. 3:06-CV-485, 2008 WL 7555484 (E.D. Va. Sept. 25, 2008) (jury found willful infringement on May 25, 2007, but plaintiff later filed waiver of its claim for willful infringement); Memorandum Opinion and Order at 2, 6, *Orion IP, L.L.C. v. Mercedes-Benz USA, L.L.C. (Hyundai Motor America)*, No. 6:05-CV-322 (E.D. Tex. Mar. 28, 2008) (Dkt. 638) (jury found willful infringement before *Seagate*, but district court declined to enter judgment on that aspect of the verdict after *Seagate*, explaining that it "will indicate to the public that the Court has not effectuated [the jury's willfulness] finding"); *Lucent Techs., Inc. v. Extreme Networks, Inc.*, 229 F.R.D. 459 (D. Del. 2005) (jury found no willful infringement; the district court later granted a new trial on multiple issues, including willfulness, due to the defendant's violation of the court's evidentiary rulings, but the case was dismissed with prejudice before retrial).

134. According to the Federal Judicial Caseload Statistics compiled by the Administrative Office of the United States Courts, 2829 patent cases were filed during the twelve months ending March 31, 2005; 2812 patent cases were filed during the twelve months ending March 31, 2006; 2814 patent cases were filed during the twelve months ending March 31, 2007; 3017 patent cases were filed during the twelve months ending March 31, 2008; 2796 patent cases were filed during the 12 months ending March 31, 2009; and 2892 patent cases were filed during the twelve months ending March 31, 2010. *Federal Judicial Caseload Statistics*, U.S. COURTS, available at <http://www.uscourts.gov/Statistics/FederalJudicialCaseloadStatistics.aspx> (last visited Oct. 6, 2011) (providing access to statistics for years 2005–2010). Assuming patent cases from April 2010 through July 2010 were filed at a similar rate as the preceding six years (an average of 238 cases per month for 4 months, for an estimated 952 cases), and further assuming that one-half of the cases for the period from April 2004 through March 2005 were filed after the *Knorr-Bremse* decision (in September 2004), the estimated number of patent cases filed during the time period of this study is 16,698. $309/16,698 = 1.85\%$.

before reaching a decision on the merits.¹³⁵ Previous studies have found that only 3–5% of patent infringement claims are decided at trial.¹³⁶ And many cases that do reach a verdict never decide willfulness—because the patent is found not infringed,¹³⁷ the patent is found invalid,¹³⁸ or the patentee did not assert willfulness. Furthermore, this percentage is similar to Judge Moore’s study, which found willfulness was decided in 2.1% of all patent cases terminated in 1999–2000.¹³⁹

Each case was coded for several variables using a standardized set of coding instructions.¹⁴⁰ These variables were: (1) the final decision on willfulness in the district court;¹⁴¹ (2) the procedural posture when willfulness was decided (e.g., via pretrial motion,¹⁴² at trial, or post-trial motions); and (3) whether a jury or a judge decided willfulness.¹⁴³ If willful infringement was found, two additional variables were coded: (4) whether enhanced damages were awarded¹⁴⁴ and (5) the amount of enhanced

135. See Kesan & Ball, *supra* note 107, at 259 (finding approximately 80% of patent cases are disposed of through settlement).

136. *Id.* at 258, 273 tbls.4 & 5, 274 tbl.6; see also Paul M. Janicke, *Patent Jury Verdicts: Myths and Realities*, INTELL. PROP. TODAY, July 2007, at 18.

137. Kesan & Ball, *supra* note 107, at 275 tbl.7 (finding infringement in only a slight majority—53%—of cases decided at trial).

138. *Id.* at 276 tbl.8 (finding invalidity in 19% of cases decided at trial).

139. Moore, *supra* note 6, at 234.

140. In empirical research, written coding instructions are needed so all coders apply the same criteria for each coding decision. This helps promote consistency in coding and serves as “a check against looking, consciously or not, for confirmation of predetermined positions.” Hall & Wright, *supra* note 109, at 81; see also Lee Epstein & Andrew Martin, *Coding Variables*, in 1 ENCYCLOPEDIA OF SOCIAL MEASUREMENT 321, 325 (Kimberly Kempf-Leonard ed., 2005) (explaining that “the overriding goal of a codebook is to minimize human judgment—to leave as little as possible to interpretation”). In addition, written coding instructions are necessary “because the scientific standard of replicability requires a written record of how categories were defined and applied.” Hall & Wright, *supra* note 109, at 109. The coding instructions for this study and the resulting dataset will be made publicly available.

141. This was actually recorded as two separate variables in the dataset: the “initial” decision on willfulness, and the “final” decision on willfulness. For most cases, these variables were coded the same. In some cases, however—most commonly, if the jury found willfulness at trial, but this decision was overturned by the district court on post-trial motions—the final decision differed from the initial one. See, e.g., *Presidio Components Inc. v. Am. Technical Ceramics Corp.*, 723 F. Supp. 2d 1284, 1323–25 (S.D. Cal. 2010); *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 692 F. Supp. 2d 487, 503–05 (M.D. Pa. 2010); *TGIP, Inc. v. AT&T Corp.*, 527 F. Supp. 2d 561, 578–79 (E.D. Tex. 2007). For these cases, the final decision (e.g., grant of JMOL of no willfulness) was used.

142. “Pretrial motions” include motions for summary judgment under Rule 56, as well as Rule 12 motions, if the motion resulted in a final decision on willfulness (e.g., summary judgment of no willfulness). See *supra* notes 125–26 and accompanying text.

143. This variable is most useful in evaluating potential differences between juries and judges as finders of fact on the issue of willfulness at trial. See *infra* Part IV.A.3.

144. As previously explained, whether to award enhanced damages for willful infringement is an issue reserved for the district court. *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 826 (Fed.

damages awarded, as compared to compensatory damages.¹⁴⁵ Finally, two dummy variables were included: (6) whether the final decision on willfulness occurred before or after *Seagate* and (7) whether the decision to award enhanced damages (and if so, how much) was made before or after *Seagate*.

The study also sought to determine the effect of several common factors on willfulness decisions after *Seagate*. A tentative list of factors was developed after a review of post-*Seagate* case law and secondary sources.¹⁴⁶ These factors were: (1) reliance on an opinion of counsel as a defense to willfulness; (2) the existence of a “substantial” or “legitimate” defense to infringement; (3) evidence of copying by the accused infringer; (4) evidence that the accused infringer attempted to design around the patent; (5) reexamination of at least one patent-in-suit by the PTO; and (6) bifurcation of the issue of willfulness at trial. For this latter group of variables, the post-*Seagate* willfulness decisions—172 in total—were examined in more detail. Sufficient information was available to fully code 136 cases, or approximately 80% (79.1%) of all post-*Seagate* willfulness decisions.

Before reaching a coding decision for this latter group of variables, all judicial opinions on willfulness and enhanced damages, as well as electronic docket information and relevant court filings, were reviewed. For example, the author found it was often useful to examine the parties’ post-trial briefs on willfulness and enhanced damages, which summarized the evidence and arguments presented at trial on these issues. Trial transcripts were also

Cir. 1992), *abrogated in part* by *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995).

145. The following formula was used to express this ratio: (*enhanced damages + compensatory damages*) / *compensatory damages*. When enhanced damages were awarded, the ratio ranged between one and three (for full trebling of damages). For example, if the patentee was awarded \$200 million in compensatory damages, and an additional \$40 million in enhanced damages, the ratio would be 1.2:1. See *i4i Ltd. P’ship v. Microsoft Corp.*, 670 F. Supp. 2d 568, 596 (E.D. Tex.), *aff’d as modified*, 589 F.3d 1246 (Fed. Cir. 2009), *opinion withdrawn and superseded* by 598 F.3d 831 (Fed. Cir. 2010), *aff’d on other grounds*, 131 S. Ct. 2238 (2011).

146. See, e.g., *i4i Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 860 (Fed. Cir. 2010) (mentioning the infringer’s reasonable belief that it had “substantial defenses to a claim of infringement” and had “attempt[ed] to design around” the patent as potential defenses to willfulness), *aff’d on other grounds*, 131 S. Ct. 2238 (2011); *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1336 (Fed. Cir. 2009) (holding that “evidence of copying . . . is relevant only to *Seagate*’s second prong”); *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1339 (Fed. Cir.) (“[An] opinion of counsel concluding either that [the accused infringer] did not infringe the . . . patent or that it was invalid would provide a sufficient basis for [the accused infringer] to proceed without engaging in objectively reckless behavior . . .” (emphasis omitted)), *cert. denied*, 555 U.S. 1070 (2008); *Safoco, Inc. v. Cameron Int’l Corp.*, No. H-05-0739, 2009 WL 2424108, at *19 (S.D. Tex. July 31, 2009) (finding that “the granting of a reexamination request by the USPTO is . . . one factor among others that should be considered in evaluating a claim for willful infringement”); Prati, *supra* note 60, at 67 (listing “deliberate copying” and the “closeness of the case” as factors likely affecting willfulness after *Seagate*).

reviewed when they were available electronically. Finally, the PTO's Public Patent Application Information Retrieval ("PAIR") website was reviewed for data on reexaminations.¹⁴⁷

IV. RESULTS AND DISCUSSION

This Part describes the results from the dataset of willful infringement decisions and enhanced-damages awards during the full study period, as well as the post-*Seagate* decisions that were examined in more detail. It analyzes these results and offers some tentative conclusions about the realities of willful infringement and enhanced damages both before and after *Seagate*.

The analysis below contends that certain results are statistically significant. Statistical significance is the probability that an observed relationship is not due to chance.¹⁴⁸ A *p*-value of less than 0.05 is usually "considered statistically significant because it indicates that the probability that the results are due to chance is less than five percent."¹⁴⁹ Results with a *p*-value of less than 0.01 are considered highly statistically significant.¹⁵⁰ All data analysis was conducted using Stata/IC 11.2.

A. WILLFUL INFRINGEMENT

1. *Seagate* Resulted in More Summary Judgment Decisions on Willfulness

One key issue is the procedural posture for deciding willfulness after *Seagate*. Judge Moore's study found that prior to 2000, "[w]illfulness was only decided if and when the case went to trial. Willfulness was never decided on summary judgment."¹⁵¹ After *Seagate*, however, commentators predicted many willfulness claims would be resolved before trial because its "objective recklessness" standard would be more difficult for patentees to satisfy, and thus, more likely to be resolved through pretrial motions.¹⁵² Indeed, *Seagate*

147. U.S. PATENT & TRADEMARK OFFICE, <http://portal.uspto.gov/external/portal/pair> (last visited Oct. 6, 2011).

148. See, e.g., *Elementary Statistics Concepts*, STATSOFT, <http://www.statsoft.com/textbook/elementary-concepts-in-statistics> (last visited Oct. 6, 2011) ("The statistical significance of a result is the probability that the observed relationship (e.g., between variables) . . . occurred by pure chance.").

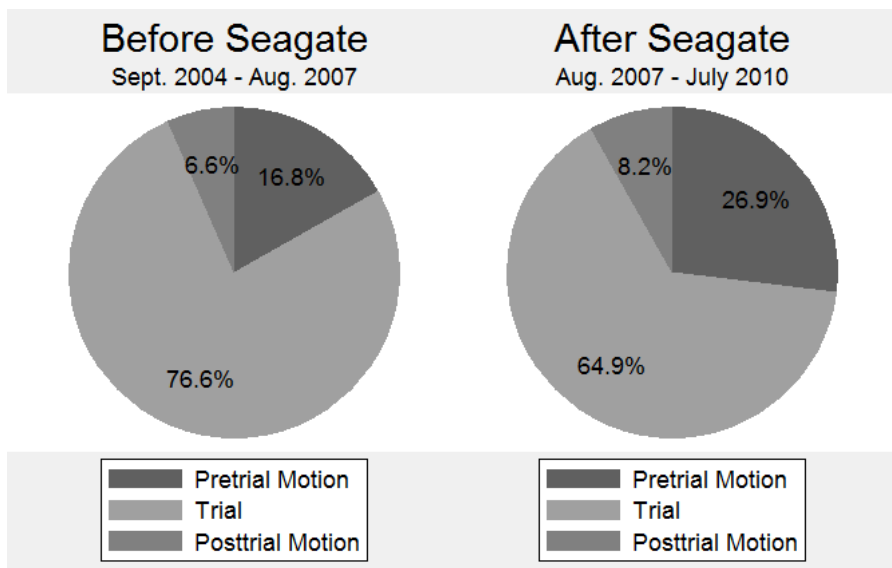
149. Petherbridge, *supra* note 107, at 1384. In the tables and charts below, statistically significant results are indicated with a single asterisk (*).

150. In the tables and charts below, highly statistically significant results are indicated with two asterisks (**).

151. Moore, *supra* note 6, at 234.

152. See, e.g., Bernstein, *supra* note 105 ("Prior to *Seagate*, parties would seldom move for summary judgment on the issue of willfulness, and courts would even less frequently grant these motions. . . . Now, however, it is becoming more routine for accused infringers to move for summary judgment of no willful infringement prior to trial, and courts are actually granting these motions . . ."); Justin McCarthy, Note, In Re *Seagate*: *One Step Closer to a Rational Doctrine*, 10 MINN. J. L. SCI. & TECH. 355, 384 (2009) (asserting that because *Seagate's* objective recklessness standard "is more difficult for plaintiffs to meet, it would be expected that the

itself suggests that a bare-bones willfulness allegation would be vulnerable to a Rule 12(b)(6) motion, stating that “when a complaint is filed, a patentee must have a good faith basis for alleging willful infringement.”¹⁵³ Furthermore, some observers suggested *Seagate* would result in more post-trial grants of JMOL overturning jury verdicts of willfulness.¹⁵⁴



Figures 1 and 2: Procedural Posture for Deciding Willfulness

Figure 1 (on the left-hand side) illustrates the procedural posture for deciding willfulness in the three-year period before *Seagate*. Over three-quarters (76.6%) of willfulness decisions were made at trial. An additional 6.6% of final decisions were reached in a post-trial motion, usually via a renewed motion for JMOL of no willfulness under Federal Rule of Civil Procedure 50(b). As a result, the vast majority of willfulness decisions were made during or after trial. Only 16.8% of cases decided willfulness on pretrial motions. While this amount of pretrial decisions was relatively small, it represented a substantial increase from Judge Moore’s study.¹⁵⁵

amount of summary judgment rulings early in the patent litigation process would increase to dispose of the willful infringement counts”).

153. *In re Seagate Tech., LLC*, 497 F.3d 1360, 1374 (Fed. Cir. 2007) (en banc) (citing FED. R. CIV. P. 8, 11(b)), *cert. denied*, 552 U.S. 1230 (2008); see also Damon C. Andrews, Note, *Iqbal-ing Seagate: Plausibility Pleading of Willful Patent Infringement*, 25 BERKELEY TECH. L.J. 1955, 1966 (2010) (discussing *Iqbal*’s effect on willfulness findings in patent infringement cases).

154. See Bernstein, *supra* note 105 (claiming “courts are frequently reversing jury verdicts of willful infringement” after *Seagate* and “[t]he increase in the filing and granting of [post-trial] motions should continue”).

155. See *supra* note 151 and accompanying text.

Figure 2 (on the right-hand side) illustrates the procedural posture for deciding willfulness after *Seagate*. For this time period, willfulness was decided through pretrial motions in over one-quarter (26.9%) of all cases. However, even after *Seagate*, willfulness is usually still decided at trial (64.9% of the time). There is also a slight uptick in the number of post-trial willfulness decisions, to 8.2%, usually through a renewed motion for JMOL of no willfulness.¹⁵⁶ Thus, while most commentators accurately predicted there would be more pretrial decisions on willfulness after *Seagate*, willful infringement is usually still decided at trial.

2. *Seagate* and Willfulness Findings

Another key hypothesis for testing was whether *Seagate* had a significant impact on willfulness decisions. As previously discussed, many patent litigators and scholars contended that *Seagate*'s "objective recklessness" standard would result in substantially fewer willfulness findings.¹⁵⁷ One can empirically test this hypothesis by comparing willful infringement decisions in the district courts before and after *Seagate*, using Pearson's chi-square (χ^2) test to determine whether any observed difference is statistically significant.

	Before <i>Seagate</i> (Sept. 2004–Aug. 2007)	After <i>Seagate</i> (Aug. 2007–July 2010)
% Willful	48.2% (66 of 137)	37.2% (64 of 172)
$p = 0.052$		

Table 1: Willfulness Findings Before and After *Seagate*

As shown in Table 1, during the pre-*Seagate* period (September 2004–August 2007), willful infringement was found in just under a majority of cases (48.2%). In contrast, after *Seagate* (August 2007–July 2010), willful infringement was found almost 40% of the time (37.2%). This means that willfulness was found in approximately 10% (11.0%) fewer cases after *Seagate*. Notably, this difference was not found to be statistically significant, although the p -value is close to the 0.05 significance threshold ($p = 0.052$). As a result, the null hypothesis—that the decline in willfulness findings after *Seagate* was due to chance—cannot be definitively rejected.¹⁵⁸

¹⁵⁶ This Figure omits one decision where the accused infringer stopped disputing an allegation of willful infringement shortly before trial, but continued to contest other issues, including validity of the patent-in-suit. See *Joyal Prods., Inc. v. Johnson Electric N. Am., Inc.*, No. 04-5172 (JAP), 2009 WL 512156 (D.N.J. Feb. 27, 2009), *aff'd*, 335 F. App'x 48 (Fed. Cir. 2009).

¹⁵⁷ See *supra* text accompanying notes 97–104.

¹⁵⁸ It is unclear whether additional data (i.e., willfulness decisions after July 2010) might alter this conclusion. However, there have been a number of additional willfulness findings since the end of the study period. See, e.g., *Judgment, Smith & Nephew, Inc. v. Arthrex, Inc.*, No.

One potential counterargument is that *Seagate* does have an important impact on willfulness, but this impact cannot be fully measured by litigation decisions due to selection effects. “In general, ‘[t]he selection effect refers to the proposition that the selection of tried cases is not a random sample of the mass of underlying cases.’”¹⁵⁹ This is because “[c]ases only go to trial when the parties substantially disagree on the predicted outcome.”¹⁶⁰ Rational parties consider all available information regarding their likelihood of success on a claim, including the applicable legal precedent, and adjust their expectations accordingly.¹⁶¹ When the applicable legal standard clearly favors one side or the other, parties tend to settle their disputes rather than incur the expense of litigation.¹⁶² In contrast, “[d]ifficult cases falling close to the applicable legal standard tend not to settle, because the parties are more likely to disagree substantially in their predicted outcomes.”¹⁶³ As a result, “the disputes selected for litigation . . . will constitute neither a random nor a representative sample of the set of all disputes.”¹⁶⁴

However, selection effects may not play an important role regarding willfulness for several reasons. First, previous empirical studies have found that before *Seagate*, patentees claimed willfulness in the overwhelming majority of cases.¹⁶⁵ Anecdotal evidence suggests that willfulness is still

04-00019-MO (D. Or. July 30, 2011); Jury Verdict, *Convolve, Inc. v. Dell, Inc.*, No. 2:08-CV-244-CE (E.D. Tex. July 26, 2011); Jury Verdict, *Fractus S.A. v. Samsung Elecs. Co.*, No. 6:09-CV-203 (E.D. Tex. May 23, 2011); Jury Verdict, *Peach State Labs, Inc. v. Envtl. Mfg. Solutions, L.L.C.*, No. 6:09-cv-395-Orl-28DAB (M.D. Fla. Apr. 18, 2011); Final Judgment, *FURminator, Inc. v. Kim Laube & Co.*, No. 4:08CV00367 ERW (E.D. Mo. Mar. 30, 2011); Jury Special Verdict, *Accentra Inc. v. Staples, Inc.*, No. CV 07-5862 ABC (R Zx) (C.D. Cal. Jan. 11, 2011); Memorandum Opinion and Order, *Bendix Commercial Vehicle Sys., L.L.C. v. Haldex Brake Prods. Corp.*, No. 1:09CV176, 2011 WL 9347 (N.D. Ohio Jan. 3, 2011) (refusing to overturn September 2010 jury finding of willfulness); Jury Verdict, *Tyco Healthcare Grp. v. Biolitec, Inc.*, Nos. Co8-04234 MMC, Co8-03129 MMC (N.D. Cal. Dec. 8, 2010); Verdict Sheet, *Metso Minerals, Inc. v. Powerscreen Int’l Distribution Ltd.*, No. CV 06-01446 (ADS) (E.D.N.Y. Dec. 6, 2010).

159. Kevin M. Clermont & Theodore Eisenberg, *Trial by Jury or Judge: Transcending Empiricism*, 77 CORNELL L. REV. 1124, 1129 (1992) (alteration in original) (quoting Theodore Eisenberg, *Testing the Selection Effect: A New Theoretical Framework with Empirical Tests*, 19 J. LEGAL STUD. 337, 337 (1990)). For the seminal article on the “selection effect,” see George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1 (1984).

160. Clermont & Eisenberg, *supra* note 159, at 1129.

161. Priest & Klein, *supra* note 159, at 4.

162. Clermont & Eisenberg, *supra* note 159, at 1129.

163. *Id.*

164. Priest & Klein, *supra* note 159, at 4.

165. See Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 N.C. L. REV. 1421, 1440–42 (2009) (finding that willfulness was alleged 81% of the time in a random sampling of patent cases in the District of Delaware and Eastern District of Texas between January 2000 and May 2007); Moore, *supra* note 6, at 232 (finding that willfulness was asserted by the patentee in 92% of all patent cases from 1999–2000).

routinely alleged after *Seagate*,¹⁶⁶ so long as the patentee has a nonsanctionable basis for doing so.¹⁶⁷ This is because, for a patentee, the possibility of a willfulness finding and an enhanced-damages award is a low-risk, high-reward proposition. Even if the likelihood of success is relatively low, patentees will still allege and pursue willfulness claims because the potential benefit—up to triple damages—is quite large. Indeed, selection-effects theory recognizes that when there are asymmetric stakes that favor the plaintiff, “litigation is . . . likely [even when] the plaintiff has a small probability of winning.”¹⁶⁸ Thus, a patentee has little incentive to not pursue a potentially viable willfulness claim.¹⁶⁹

Further, the dataset itself tends to rebut the claim that selection effects substantially alter parties’ behavior about litigating willfulness. If a large selection effect existed, one would expect to see significantly *fewer* willfulness decisions in litigation after *Seagate*, as patentees would not pursue claims that might have succeeded under the old “affirmative duty of due care” standard but were no longer viable after *Seagate*. In fact, however, the dataset reveals the exact opposite—there was an *increase* in the number of willfulness decisions after *Seagate*. This study identified 137 cases as deciding willfulness in the pre-*Seagate* period (September 2004–August 2007). In contrast, 172 cases were identified in the same time period after *Seagate*.¹⁷⁰ Indeed, the post-*Seagate* cohort remains larger on a percentage basis after accounting for the relative amount of patent litigation filed during each time period.¹⁷¹

166. See, e.g., Anderson, *supra* note 104, at 13 (“Anecdotal evidence indicates that more than 90 percent of patent cases continue to involve allegations of willful infringement[, even] . . . after *Seagate*.”); Randy R. Micheletti, Note, *Willful Patent Infringement After In Re Seagate: Just What Is “Objectively Reckless” Infringement?*, 84 CHI-KENT L. REV. 975, 975 (2010) (noting that “willfulness is alleged in nearly all patent infringement suits”).

167. See *In re Seagate Tech., LLC*, 497 F.3d 1360, 1374 (Fed. Cir. 2007) (en banc) (holding that “a patentee must have a good faith basis for alleging willful infringement” in a complaint (citing FED. R. CIV. P. 11)), *cert. denied*, 552 U.S. 1230 (2008). To the author’s knowledge, there has been no decision imposing Rule 11 sanctions on a patentee for lacking a good-faith basis to claim willfulness since *Seagate*. Interestingly, however, the Northern District of California has imposed mandatory disclosure obligations early in litigation for patentees claiming willfulness. See N.D. CAL. PATENT L.R. 3-1 (h) (2010) (providing that a party claiming willful infringement must disclose “the basis for such allegation” within fourteen days after the initial case-management conference). But see Andrews, *supra* note 153, at 1985 (arguing that pleading willfulness after *Iqbal* “will almost certainly be beyond the reach of most [patentees]” who are armed with “only limited knowledge of [the] defendant’s allegedly infringing device,” let alone his “conduct leading up to his decision to manufacture that device”).

168. Priest & Klein, *supra* note 159, at 25.

169. It is possible, however, that a patentee might agree to drop a relatively weak willfulness claim in exchange for concessions from the accused infringer during litigation.

170. However, part of this increase was due to several post-*Seagate* district court decisions that granted JMOL of no willfulness which overturned a pre-*Seagate* jury verdict of willfulness.

171. A decision on willfulness was reached in approximately 1.6% of patent cases before *Seagate*, and in 2.1% of patent cases after *Seagate*. See *supra* note 134 for data on patent cases filed during each time period.

As an alternative hypothesis, the author also examined whether the Federal Circuit's decision in *Knorr-Bremse*¹⁷² in 2004, which eliminated the "adverse inference" rule for an accused infringer's failure to obtain or disclose an opinion of counsel, might have had a significant impact on willfulness decisions. For this comparison, the author used the data from Judge Moore's previous study, which found willfulness 63.8% of the time the issue was decided from 1983–1999, as a proxy for all pre-*Knorr-Bremse* decisions.¹⁷³

	Before <i>Knorr-Bremse</i> (1983–1999)	After <i>Knorr-Bremse</i> , Before <i>Seagate</i> (Sept. 2004–Aug. 2007)	After <i>Seagate</i> (Aug. 2007– July 2010)
% Willful	63.8%** (349 of 547)	48.2%** (66 of 137)	37.2%** (64 of 172)
$p = 0.000$			

Table 2: Willfulness Findings: *Knorr-Bremse* and *Seagate*

As depicted in Table 2, there is a substantial decline in willfulness findings over the three time periods (64% to 48% to 37%). Furthermore, this cumulative difference is highly statistically significant ($p = 0.000$). As a result, the cumulative impact of the Federal Circuit's decisions in *Knorr-Bremse* and *Seagate*, rather than *Seagate* alone, may account for the decrease in willfulness findings since 1999. Indeed, it may be possible that *Knorr-Bremse* had a larger impact than *Seagate* on willfulness decisions, as there is highly statistically significant difference ($p=0.001$) between the pre-2000 willfulness decisions identified in Judge Moore's study compared with the post-*Knorr-Bremse*, pre-*Seagate* decisions collected in this dataset.

3. Jury Versus Judge on Willfulness

Another important issue is whether willfulness findings varied depending on whether the decisionmaker was a jury or a judge. In Judge Moore's study, willfulness was found in 67.7% of jury trials and 52.6% of bench trials from 1983 and 2000.¹⁷⁴ This study sought to determine whether a similar pattern existed after the Federal Circuit's decisions in *Knorr-Bremse* and *Seagate*, respectively.

172. *Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337 (Fed. Cir. 2004) (en banc).

173. Moore, *supra* note 59, at 390 & tbl.4 (noting that willfulness was found in 349 of 547 patent trials that decided the issue from 1983 to 1999).

174. Moore, *supra* note 6, at 237; *see also* Moore, *supra* note 59, at 390, 393 & tbl.4 (finding that, from 1983 to 1999, juries found willfulness 71% of the time, compared to 53% for judges).

% Willful	Before <i>Seagate</i> (Sept. 2004–Aug. 2007)	After <i>Seagate</i> (Aug. 2007–July 2010)
Jury	60.9% (56 of 92)	61.9% (52 of 84)
Judge	53.9% (7 of 13)	18.5%** (5 of 27)
	$p = 0.628$	$p = 0.000$

Table 3: Willfulness Decisions at Trial¹⁷⁵: Jury vs. Judge

Table 3 shows that the pre-*Seagate* willfulness decisions closely follow the pattern observed by Judge Moore: at trial, juries found willfulness at higher rates than judges did, but not dramatically so. Before *Seagate*, juries found willfulness about 60% of the time, while judges found willfulness about 54% of the time. This difference was not statistically significant ($p = 0.628$) using Pearson's chi-square (χ^2) test.

The more surprising result occurred in the post-*Seagate* cases. When a jury was the decisionmaker at trial, willfulness was found about 62% of the time—almost identical to pre-*Seagate*. When a judge decided willfulness at trial, however, willfulness was found much less often: less than one in five cases (19%). This difference was highly statistically significant ($p = 0.000$) using Pearson's chi-square (χ^2) test, suggesting that the difference was not due to chance alone.

Part of this result is due to an increase in district-court decisions granting motions for JMOL during trial on willfulness after *Seagate*. Federal Rule of Civil Procedure 50(a) provides that a district court may grant JMOL “at any time before the case is submitted to the jury” “[i]f a party has been fully heard on an issue during a jury trial and the court finds that a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue.”¹⁷⁶ Under the coding instructions, a court's decision to grant JMOL before verdict at trial was classified as a judicial decision—because the judge determined there was no willfulness—even though the rest of the issues in the case may have been decided by a jury. All of the post-*Seagate*, pre-verdict JMOL decisions found no willfulness.

However, these pre-verdict JMOL decisions, by themselves, likely cannot account for the much lower rate of willfulness findings by judges after *Seagate*. If pre-verdict JMOL decisions are excluded from the dataset (11 of 27 cases), willful infringement was still found in less than a third (31.3%) of all bench trials, which remains statistically significant ($p = 0.024$).

175. Excluded from this table are eight cases (three pre-*Seagate* and five post-*Seagate*) where willfulness was found through pretrial motions and one post-*Seagate* case where willful infringement was found for products sold after trial.

176. FED. R. CIV. P. 50(a).

An alternative explanation is that judges and juries have a very different understanding of what conduct is “willful” after *Seagate*. Federal judges typically have decades of legal experience before being appointed to the bench and are sensitive to the meaning of legal words and phrases.¹⁷⁷ As a result, they understand that objective recklessness requires a significantly higher degree of culpability than a negligence-like standard, like the one articulated in *Underwater Devices*.¹⁷⁸ Furthermore, because patent cases are concentrated in a relatively small number of districts,¹⁷⁹ judges—unlike jurors—are often “repeat players” in patent litigation and may better understand the higher burden of proof imposed by *Seagate*.¹⁸⁰

In contrast, decades of empirical research have demonstrated that lay jurors frequently have difficulty understanding “legal jargon” and “legal terms of art,”¹⁸¹ particularly in complex litigation.¹⁸² Thus, many jurors may be unable to comprehend a difference between an infringer’s failure to

177. See, e.g., Nancy S. Marder, *Bringing Jury Instructions into the Twenty-First Century*, 81 NOTRE DAME L. REV. 449, 460 (2006) (explaining that “years of schooling and practice” make judges sensitive to legal language). For example, virtually all law students learn the difference between recklessness and negligence in the context of a first-year criminal law class.

178. See *In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc) (“[T]he duty of care announced in *Underwater Devices* sets a lower threshold for willful infringement that is more akin to negligence.”), *cert. denied*, 552 U.S. 1230 (2008).

179. See, e.g., KIMBERLY A. MOORE, PAUL R. MICHEL & TIMOTHY R. HOLBROOK, PATENT LITIGATION AND STRATEGY 93–101 (3d ed. 2008) (finding that between 2000 and 2006, the top ten district courts for patent litigation had 47% of all patent cases, but only 29% of all civil litigation during that time); *Courts*, LEX MACHINA, <http://lexmachina.com/courts?filter=Patent> (last visited Oct. 10, 2010) (finding that the top seven districts for patent litigation—the Southern District of New York, the District of Delaware, the District of New Jersey, the Eastern District of Texas, the Northern District of Illinois, the Northern District of California, and the Central District of California—had 49.7% of all patent cases filed in 2009).

180. See Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1093 (2003) (“While judges can develop a reputation in the patent trial arena” through repeated experience adjudicating patent cases, “juries are one-shot players.”). *But cf.* Schwartz, *supra* note 107, at 254–56 (finding that judicial experience with patent cases does not result in a lower reversal rate on claim construction issues by the Federal Circuit).

181. Marder, *supra* note 177, at 451, 454; see also Robert MacCoun, *Inside the Black Box: What Empirical Research Tells Us About Decisionmaking by Civil Juries*, in VERDICT: ASSESSING THE CIVIL JURY SYSTEM 137, 151 (Robert E. Litan ed., 1993) (explaining that “[a] growing body of studies indicates that some jurors may fail to comprehend as much as 50 percent of the judge’s instructions”). See generally Marder, *supra* note 177, at 454–58 (providing an overview of empirical studies demonstrating that “jurors have difficulty understanding jury instructions”).

182. See, e.g., Steven I. Friedland, *The Competency and Responsibility of Jurors in Deciding Cases*, 85 NW. U. L. REV. 190, 197 (1990) (“One type of case in which juries have appeared to function deficiently is the complex civil lawsuit. In such a case, the complexity of the issues may prevent the jury from fully understanding the applicable rules and principles . . .” (footnote omitted)); Matthew A. Reiber & Jill D. Weinberg, *The Complexity of Complexity: An Empirical Study of Juror Competence in Civil Cases*, 78 U. CIN. L. REV. 929, 967 (2010) (“[J]uror comprehension decreases as complexity increases, even among relatively well-educated jurors with prior jury experience.”).

satisfy an “affirmative duty of due care” and acting with recklessness regarding the patentee’s rights.

Furthermore, this issue may be exacerbated by existing model patent jury instructions on willfulness, which are lengthy, structurally complex, and contain legal jargon. For example, the *Model Patent Jury Instructions* promulgated by the National Jury Instruction Project explain “objective recklessness” as follows:

To prove willful infringement, [the patent holder] must persuade you that it is highly probable that [before the filing date of the complaint], [the alleged infringer] acted with reckless disregard of the claims of [the patent holder]’s patent. To show “reckless disregard,” [the patent holder] must satisfy a two-part test: the first concerns [the alleged infringer]’s conduct, the second concerns [the alleged infringer]’s state of mind.

When considering [the alleged infringer]’s conduct, you must decide whether [the patent holder] has proven it is highly probable that [the alleged infringer]’s conduct was reckless; that is, that [the alleged infringer] proceeded with the allegedly infringing conduct with knowledge of the patent, and in the face of an unjustifiably high risk that it was infringing the claims of a valid and enforceable patent. Because this is an objective issue, the state of mind of [the alleged infringer] is not relevant to it. Legitimate or credible defenses to infringement, even if ultimately not successful, demonstrate a lack of recklessness.

If you conclude that [the patent holder] has proven that [the alleged infringer]’s conduct was reckless, then you need to consider the second part of the test. You must determine whether [the patent holder] proved it is highly probable that the unjustifiably high risk of infringement was known or so obvious that it should have been known to [the alleged infringer]. In deciding whether [the alleged infringer] satisfied the state-of-mind part of the test, you should consider all facts surrounding the alleged infringement including, but not limited to, the following:

1. whether [the alleged infringer] acted in a manner consistent with the standards of commerce for its industry;
2. whether [the alleged infringer] intentionally copied without a reasonable basis a product [method] of [the patent holder] covered by one or more claims of the patent, as distinguished from trying to “design around” the

patent by designing a product [method] that [the alleged infringer] believed did not infringe those claims.¹⁸³

Readability tests provide one indication of the difficulty jurors may face in understanding such instructions. Using the Flesch–Kincaid Grade Level test,¹⁸⁴ which assigns a readability number based on an average student at a grade level,¹⁸⁵ the willfulness instruction quoted above has a grade level of 15.8; in other words, it requires the education level of almost an average college senior to comprehend it.¹⁸⁶ Similar model jury instructions adopted by the Northern District of California and the Federal Circuit Bar Association are of a comparable degree of difficulty.¹⁸⁷ And this problem may be compounded because a jury must simultaneously attempt to understand instructions on other complex patent law issues, such as infringement, invalidity, and damages.¹⁸⁸

Faced with such confusing and difficult-to-understand instructions, juries instead may view willfulness as whether the defendant was “wrong” in infringing the patent. As Judge Moore has suggested, juries may be easily swayed by claims that an accused infringer was a wrongdoer who should be punished for “stealing” the patentee’s invention:

Juries may perceive the patentee who brings an infringement action as a victim and an infringer accused of stealing patented

183. MODEL PATENT JURY INSTRUCTIONS § 4.1 (Nat’l Jury Instruction Project 2009) (footnotes omitted), *available at* <http://www.nationaljuryinstructions.org/documents/NationalPatentJuryInstructions.pdf>. The quoted portion omits the first two paragraphs of the instruction, which introduces the jury to willfulness’s role in patent litigation.

184. *See Test Your Document’s Readability*, MICROSOFT OFFICE, <http://office.microsoft.com/en-us/word-help/test-your-document-s-readability-HP010148506.aspx> (last visited Oct. 6, 2011).

185. *Id.* (“For example, a score of 8.0 means that an eighth grader can understand the document.”).

186. The Flesch–Kincaid Grade Level test scores for all jury instructions referenced in this article were calculated using Microsoft Word 2007. *See id.*

187. MODEL PATENT JURY INSTRUCTIONS FOR THE N. DIST. OF CALIFORNIA § 3.11 at 22–23 (2007), *available at* <http://www.cand.uscourts.gov/filelibrary/5/Model-Patent-Jury-Instructions.pdf> (Flesch–Kincaid Grade Level test of 13.7; Flesch Reading Score of 37.1); MODEL PATENT JURY INSTRUCTIONS § 3.8 at 45–46 (Fed. Circuit Bar Ass’n, Feb. 18, 2010), *available at* <http://memberconnections.com/olc/filelib/LVFC/cpages/9008/Library/FCBAModelJury%20Instructions%20February%2018%202010.pdf> (Flesch–Kincaid Grade Level test of 13.9; Flesch Reading Score of 38.0) [hereinafter FED. CIR. MODEL PATENT JURY INSTRUCTIONS]. Only the Seventh Circuit’s model instruction on willfulness, which is noticeably shorter and contains less “legalese,” scores significantly better for readability. *See* JURY INSTRUCTIONS OF THE SEVENTH CIRCUIT § 11.2.14 at 226–27 (Comm. on Pattern Civil Jury Instructions of the Seventh Circuit 2009), *available at* http://www.ca7.uscourts.gov/Pattern_Jury_Instr/7th_civ_instruc_2009.pdf (Flesch–Kincaid Grade Level test of 10.6; Flesch Reading Score of 46.5).

188. *Cf.* John C. Lowe, *Reinventing an Outdated Wheel: Innovations in Complex Litigation*, 2 VA. J.L. & TECH. 6 ¶ 31 (1997) (asserting that the problem of traditional jury instructions “often is compounded by a judge reading the voluminous instructions . . . to the panel of bored, impatient, and uninterested jurors”).

technology, a villain. To find willfulness, the factfinder must conclude that the infringer intentionally or flagrantly disregarded the patentee's rights. The outcome data indicate that juries are more easily persuaded than judges by "bad guy" evidence.¹⁸⁹

Ultimately, the difference between jury and judge decisions on willfulness after *Seagate* "suggests that juries may harbor (as borne out by the outcome data) the popularly perceived bias in favor of the patent holder" compared to judges.¹⁹⁰

4. Venue and Willfulness

Another issue studied was whether willfulness findings varied depending on venue. Venue can be an important, even decisive, issue in patent litigation. In patent cases, for a corporate defendant—the most common target of an infringement suit—venue is proper "in any judicial district in which it is subject to personal jurisdiction at the time the action is commenced,"¹⁹¹ granting patentees a wide variety of choices about where to sue.¹⁹² Patentees frequently engage in forum shopping by filing suit in districts that are perceived as favorable. And at least until recently,¹⁹³ motions to transfer patent cases from one district to another were not frequently granted, particularly in the Eastern District of Texas, "because courts g[a]ve substantial deference to the plaintiff's choice of forum."¹⁹⁴

For instance, the Eastern District of Texas—a district with no major metropolitan areas¹⁹⁵ and relatively few high-technology companies or

189. Moore, *supra* note 59, at 393.

190. *Id.*

191. 28 U.S.C. § 1391(c) (2006); *see also* VE Holding Corp. v. Johnson Gas Appliance Co., 917 F.2d 1574, 1583 (Fed. Cir. 1990) ("[V]enue in a patent infringement case includes any district where there would be personal jurisdiction over the corporate defendant at the time the action is commenced.").

192. *See* Moore, *Forum Shopping*, *supra* note 107, at 901 ("With . . . lax jurisdiction and venue requirements, plaintiffs in patent cases have an unfettered choice of where to bring suit.").

193. There has been an increase in the transfer of patent litigation out of the Eastern District of Texas—a preferred forum for many patentees, particularly nonpracticing entities ("NPEs")—since the Fifth Circuit's decision in *In re Volkswagen of America, Inc.*, 545 F.3d 304 (5th Cir. 2008), and the Federal Circuit's decision in *In re TS Tech USA Corp.*, 551 F.3d 1315 (Fed. Cir. 2008). *See, e.g.*, *On Semiconductor Corp. v. Hynix Semiconductor, Inc.*, No. 6:09-CV-390, 2010 WL 3855520, at *9 (E.D. Tex. Sept. 30, 2010) (granting motion to transfer venue to the Northern District of California); *HTI IP LLC v. DriveOk, Inc.*, No. 6:09-CV-370, 2010 WL 3075200, at *5 (E.D. Tex. Aug. 4, 2010) (granting motion to transfer venue to the Southern District of California); *Odom v. Microsoft Corp.*, 596 F. Supp. 2d 995, 1004 (E.D. Tex. 2009) (granting motion to transfer venue to the District of Oregon).

194. Moore, *Forum Shopping*, *supra* note 107, at 897.

195. 28 U.S.C. § 124(c) (2006) (listing the counties located in the Eastern District of Texas). The largest metropolitan area wholly within the Eastern District of Texas, the Beaumont-Port Arthur Metropolitan Statistical Area, was ranked 133rd nationally with an estimated population of approximately 378,000 in 2009. U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES: 2011, at 26 tbl.20 (2011), available at <http://www.census.gov>.

research firms—has become one of the top districts for filing patent suits.¹⁹⁶ Patentees, especially nonpracticing entities, often file suit in the Eastern District of Texas due to a combination of allegedly favorable attributes, including special patent rules designed to complete all discovery within nine months, judges that rarely grant dispositive pretrial motions, and plaintiff-friendly juries with a history of large damages awards.¹⁹⁷ In contrast, accused infringers prefer forums with a slower average time to trial and a larger pool of technologically sophisticated jurors, such as the Northern District of California.¹⁹⁸

Previous studies have found a statistically significant difference between districts for other important issues in patent litigation. For example, Judge Moore found there were statistically significant differences between districts on findings of infringement and validity.¹⁹⁹ She also found some variation in willful infringement findings among districts with a large number of patent cases, with a high of 85% in the Northern District of Illinois and a low of 42% in the District of Massachusetts, but these differences were not statistically significant.²⁰⁰

gov/prod/2011pubs/11statab/pop.pdf. Many northern suburbs of Dallas/Forth Worth are located within the Eastern District of Texas, but this region (the Sherman Division) handles relatively few patent cases compared to the more sparsely populated Marshall and Tyler Divisions. See Mary Alice Robbins, *Eastern District Rocket Docket Decelerates in Marshall Division*, TEXAS LAWYER (Aug. 18, 2008), <http://www.law.com/jsp/tx/PubArticleTX.jsp?id=1202423817064&slreturn=1&hbxlogin=1> (noting that in 2007, 232 patent cases were filed in the Marshall Division, compared to eight in the Sherman Division).

196. See LEX MACHINA, *supra* note 179 (showing that the Eastern District of Texas was the top district for new patent cases in 2006, 2007, and 2008, and was second in 2009).

197. E.g., Yan Leychkis, *Of Fire Ants and Claim Construction: An Empirical Study of the Meteoric Rise of the Eastern District of Texas as a Preeminent Forum for Patent Litigation*, 9 YALE J. L. & TECH. 193 (2007); Michael C. Smith, *Rocket Docket: Marshall Court Leads Nation in Hearing Patent Cases*, 69 TEX. B.J. 1045 (2006).

198. See Mark A. Lemley, *Where To File Your Patent Case*, 38 AIPLA Q.J. 401, 403 (2010) (“A [patent infringement] defendant’s ideal jurisdiction is one that regularly rules for defendants, is unlikely to send cases to jury trial, and takes a long time to do both.”).

199. Moore, *Forum Shopping*, *supra* note 107, at 919 & tbl.10.

200. *Id.* at 919 tbl.10.

District	% Willful	Decisions (n)	p-value
Eastern District of Texas	52.3%	44	0.139
Northern District of Illinois	46.2%	13	0.761
Northern District of California	43.8%	16	0.889
District of Delaware	43.3%	30	0.883
<i>National Average</i>	<i>42.1%</i>		
Eastern District of Virginia	36.4%	10	0.766
District of New Jersey	35.7%	14	0.784
Central District of California	30.8%	13	0.568
District of Massachusetts	30.0%	10	0.528
Western District of Wisconsin	30.0%	10	0.528
District of Minnesota	27.3%	11	0.368

Table 4: Willfulness Decisions by District, Sept. 2004–July 2010 (10 minimum)

Table 4 contains data on willfulness decisions for all districts with at least ten decisions during the entire study period (both before and after *Seagate*). There was some variation in the percentage of willfulness findings among various districts, from a high of over 50% in the Eastern District of Texas (52.3%) to approximately 27% in the District of Minnesota. However, none of these differences were statistically significant at the 0.05 level.

Two interesting findings may explain why the Eastern District of Texas had the highest percentage of willfulness determinations. First, in that district, willfulness was rarely decided before trial: only 7% of willfulness claims (3 of 44 cases) were decided by pretrial motions, compared to 25% of the time (66 of 264 cases) in the rest of the country. This difference was statistically significant ($p = 0.014$). In addition, juries made the final decision on willfulness over 70% of the time in the Eastern District of Texas (72.7%, 32 of 44 cases), compared to just over half (54.3%, 144 of 265 cases) elsewhere. This difference was significant as well ($p = 0.023$).

B. FACTORS AFFECTING WILLFULNESS FINDINGS

Another major research question was how some common factors affected willfulness decisions after *Seagate*. As previously discussed, the author reviewed case law and secondary sources and identified six factors as

potentially relevant to willfulness findings after *Seagate*.²⁰¹ A statistical test called multiple logistic (“logit”) regression²⁰² was used to determine each factor’s impact on the dependent variable, which was the final decision on willfulness. The results of this regression analysis are reported in Table 5.

Factor	Odds Ratio	Std. Error	p-value
Opinion of Counsel	0.712	0.347	0.486
Substantial Defense	0.124	0.067	0.000**
Copying	3.365	1.389	0.003**
Design Around	1.230	0.628	0.686
Reexamination	1.080	0.365	0.819
Bifurcation ²⁰³	0.553	0.346	0.343
$n = 136$ Pseudo R ² = 0.1924			

Table 5: Factors Affecting Willfulness After *Seagate*

As Table 5 indicates, only two factors were highly statistically significant for willfulness decisions. First, a substantial defense to infringement was highly correlated with a finding of no willfulness. In contrast, evidence of copying was highly correlated with a finding of willfulness. The remaining factors—offering an opinion of counsel, evidence of an attempted design-around, reexamination of at least one patent-in-suit, and bifurcating willfulness from liability at trial—did not have a statistically significant relationship with willfulness decisions. The data analysis and implications for each factor are discussed in greater detail in the following Subparts.

201. See *supra* Part III.B (identifying as potentially relevant factors: (1) opinions of counsel; (2) “substantial” or “legitimate” defense to infringement; (3) evidence of copying; (4) evidence of an attempted design around; (5) reexamination of the patent(s)-in-suit; and (6) bifurcation of willfulness).

202. Logistic regression is “an estimation technique . . . commonly used by legal scholars and others to analyze” the relationship between several independent explanatory variables and a single dichotomous (i.e., binary) dependent variable. David B. Spence & Paula Murray, *The Law, Economics, and Politics of Federal Preemption Jurisprudence: A Quantitative Analysis*, 87 CALIF. L. REV. 1125, 1179–87 (1999).

203. Because a significant number of cases (thirty-four) were resolved before trial and thus did not involve bifurcation, a separate logistic regression for bifurcation was conducted that only involved cases that reached trial (i.e., the final decision on willfulness was at trial or on post-trial motions). Bifurcation was omitted from the logistic regression that resulted in the Pseudo R² value reported in Table 5.

1. Opinions of Counsel

One of the most commonly cited factors for determining willfulness is whether the accused infringer obtained an opinion of counsel. Although *Seagate* eliminated the affirmative duty to obtain an opinion, the Federal Circuit's post-*Seagate* decisions confirm that a competent opinion of counsel on noninfringement or invalidity can be used to defend against willfulness.²⁰⁴ Further, some district courts have held that the absence of an opinion of counsel is "still a factor the jury can consider when applying the 'totality of the circumstances' approach with respect to willfulness of infringement," even if it no longer creates an adverse inference.²⁰⁵ Finally, some model patent jury instructions explicitly inform the jury it may consider an opinion of counsel in determining whether the accused infringer was objectively reckless.²⁰⁶

204. See *Aspex Eyewear Inc. v. Clariti Eyewear, Inc.*, 605 F.3d 1305, 1313 (Fed. Cir. 2010) ("[A]n opinion of counsel may be relevant to the issue of willful infringement, for timely consultation with counsel may be evidence that an infringer did not engage in objectively reckless behavior."); *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1339 (Fed. Cir.) ("[C]ompetent opinion of counsel concluding either that [the accused infringer] did not infringe the . . . patent or that it was invalid would provide a sufficient basis for [the accused infringer] to proceed without engaging in objectively reckless behavior."), *cert. denied*, 555 U.S. 1070 (2008).

205. *Presidio Components Inc. v. Am. Technical Ceramics Corp.* 723 F. Supp. 2d 1284, 1325 (S.D. Cal. 2010); see also *Finjan Software, Ltd. v. Secure Computing Corp.*, No. 06-369, 2009 WL 2524495, at *15 (D. Del. Aug. 18, 2009) ("While there is no longer an affirmative duty of care that requires an accused infringer to obtain an opinion of counsel, the fact that [the alleged infringer] did not seek any such opinion may be considered in the totality of circumstances surrounding willful infringement."), *aff'd in part, rev'd in part sub nom.* *Finjan, Inc. v. Secure Computing Corp.*, 625 F.3d 1197 (Fed. Cir. 2010); *Creative Internet Adver. Corp. v. Yahoo! Inc.*, No. 6:07cv354, 2009 WL 2382132, at *5 (E.D. Tex. July 30, 2009) ("[T]he lack of opinion of counsel is one factor of many that the jury could have taken into account in determining whether Defendant willfully infringed."); *Franklin Electric Co. v. Dover Corp.*, No. 05-CV-598-S, 2007 WL 5067678, at *8 (W.D. Wis. Nov. 15, 2007) ("[D]efendant's failure to seek advice of counsel prior to selling the accused devices . . . goes to the second component of the *Seagate* test—whether defendant knew or should have known with respect to the likelihood of infringement."). But see *Anascape Ltd. v. Microsoft Corp.*, No. 9:06-CV-158, 2008 WL 7182476, at *4 (E.D. Tex. Apr. 25, 2008) ("[T]he failure to obtain opinion of counsel is not a factor supporting willful infringement."). Under the recently passed Leahy-Smith America Invents Act, however, "[t]he failure of an infringer to obtain the advice of counsel with respect to any allegedly infringed patent, or the failure of the infringer to present such advice to the court or jury, may not be used to prove that the accused infringer willfully infringed the patent." Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 19, 125 Stat. 284 (2011).

206. See AM. INTELL. PROP. LAW ASS'N, AIPLA'S MODEL PATENT JURY INSTRUCTIONS 47-48 (2008) ("In making the determination as to willfulness, you must consider the totality of the circumstances. The totality of the circumstances comprises a number of factors, which include, but are not limited to . . . whether [the Defendant] relied on competent legal advice"), available at http://www.aipla.org/learningcenter/library/books/other-pubs/documents/2008_03_27_AIPLA_Model_Jury_Instructions.pdf; MODEL PATENT JURY INSTRUCTIONS FOR THE N. DIST. OF CALIFORNIA, *supra* note 187, § 3.11, at 22-23 ("In deciding whether [alleged infringer] acted with reckless disregard for [patent holder]'s patent, you should consider all of the facts

There is a widespread perception that opinions of counsel remain a strong defense against willfulness charges after *Seagate*. For example, patent litigators have asserted that “opinions of counsel remain a key defense to willfulness”²⁰⁷ and that “opinions of counsel are still important”²⁰⁸ after *Seagate*. Similar sentiments have been expressed in bar journals²⁰⁹ and law review articles.²¹⁰

The empirical evidence does not appear to support these claims, however. The relationship between opinions of counsel and willfulness findings was not statistically significant ($p = 0.486$). Indeed, the raw data makes this apparent. After *Seagate*, when accused infringers offered an opinion of counsel as a defense, they were found willful 43% of the time (13 of 30 cases). When an opinion of counsel was *not* offered, however, willfulness was found at nearly the same rate—44% of the time (47 of 106 cases). Thus, after *Seagate*, it appears that an accused infringer’s failure to obtain and offer an opinion of counsel, by itself, is “insufficient to demonstrate by clear and convincing evidence that . . . infringement was willful.”²¹¹

It is possible that selection effects may play a role here as well, and thus opinions of counsel might have an impact on willfulness findings that is not reflected in the dataset. As previously mentioned, selection-effects theory explains that the disputes selected for resolution in litigation are not a random sample because parties take into account information regarding

surrounding the alleged infringement including, but not limited to . . . [w]hether [alleged infringer] relied on a legal opinion that was well-supported and believable and that advised [alleged infringer] (1) that the [product] [method] did not infringe [patent holder]’s patent or (2) that the patent was invalid [or unenforceable].”). For both model instructions, the language regarding opinions of counsel is included only if the accused infringer has relied on an opinion of counsel as a defense to willfulness.

207. Charles S. Barquist & Bitu Rahebi, *Willfulness Post-Seagate and the Decision To Rely on Advice of Counsel*, in 2 PATENT LITIGATION 2010, at 112, 123 (PLI, 2010).

208. Neil C. Jones, Ashley B. Sumner & Brian D. McAlhaney, *Using Opinion Letters and Defending Against Willful Infringement*, in 2 PATENT LITIGATION 2010, *supra* note 207, at 171, 185.

209. See William L. LaFuze & Michael A. Valek, *Litigating Willful Infringement in the Post-Seagate World*, 1 LANDSLIDE 9, 10–11 (Jan./Feb. 2009) (asserting that “[p]re-suit opinions of counsel can still be a great defense against willfulness” after *Seagate*).

210. See Lanks, *supra* note 74, at 626 (asserting the “post-*In re Seagate* standard makes it incredibly hard to prove willful infringement when the defendant obtained an opinion of counsel prior to committing the conduct which the patentee alleges was willful infringement”).

211. *Presidio Components Inc. v. Am. Technical Ceramics Corp.*, 723 F. Supp. 2d 1284, 1325 (S.D. Cal. 2010); see also *DR Sys., Inc. v. Eastman Kodak Co.*, No. 08-CV-669-H (BLM), 2009 WL 3756765, at *12 (S.D. Cal. Nov. 9, 2009) (holding that summary judgment of no willfulness should be granted despite accused infringer’s “fail[ure] to obtain an opinion letter from a lawyer regarding the alleged infringement”); *Cordance Corp. v. Amazon.com, Inc.*, 639 F. Supp. 2d 406, 417 & n.52 (D. Del. 2009) (granting summary judgment of no willfulness, even though Amazon.com had never “sought or obtained a legal opinion on non-infringement or invalidity”).

their likelihood of success on a claim.²¹² In the willfulness context, the existence of a competent opinion of counsel regarding noninfringement or invalidity may be important information that would cause patentees not to pursue weaker willfulness claims to final judgment.²¹³ Furthermore, due to the expense of opinion letters, which can cost tens of thousands of dollars per patent,²¹⁴ companies that receive large numbers of infringement claims may obtain opinions only in cases where there is a serious issue regarding willfulness.²¹⁵ This could skew the pool of post-*Seagate* willfulness decisions toward cases where a strong case of willful infringement exists despite an opinion of counsel.²¹⁶

2. Substantial Defense to Infringement

Another commonly mentioned factor for determining willfulness is whether the accused infringer has a “substantial,” “legitimate,” or “credible” defense to the patentee’s claims. Thus, a substantial noninfringement defense, even if unsuccessful, may be sufficient to defeat a willful infringement finding.²¹⁷ Likewise, credible invalidity arguments can support

212. See *supra* notes 160–64 and accompanying text.

213. See Pan C. Lee, *A Matter of Opinion: Opinions of Counsel Remain Necessary After In re Seagate*, 25 BERKELEY TECH. L.J. 33, 46 (2010) (“An opinion letter serves as evidence of what the accused infringer knew or should have known. Thus, an opinion of counsel declaring non-infringement or invalidity refutes knowledge of any objectively high likelihood of infringement.”).

214. See Lemley & Tangri, *supra* note 28, at 1092 (estimating that the cost for an opinion letter is “between \$20,000 and \$100,000 per patent”); Matthew D. Powers & Steven C. Carlson, *The Evolution of and Impact of the Doctrine of Willful Patent Infringement*, 51 SYRACUSE L. REV. 53, 102 (2001) (“When rendered by outside counsel, patent opinions generally cost at least \$20,000, and frequently cost over \$100,000.”); see also AM. INTELLECTUAL PROP. LAW ASS’N, *supra* note 33, at 1-137 (reporting that the average cost for an opinion letter on both infringement and validity was approximately \$19,000 per patent).

215. Cf. Lee, *supra* note 213, at 40 (explaining that “due to the costs involved with obtaining an opinion of counsel, companies that received many infringement notices found obtaining an opinion letter in response to each notice infeasible,” and as a result, “an accused infringer was likely often forced to make judgment calls” regarding the seriousness of the claim).

216. See, e.g., *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 725 F. Supp. 2d 474, 478 (D. Del. 2010) (“[T]he post-litigation opinions obtained by [the accused infringer] with regard to the ’075 patent . . . are insufficient to overcome the overwhelming evidence of willful infringement presented by [patentee].”); *Funai Electric Co. v. Daewoo Elecs. Corp.*, 593 F. Supp. 2d 1088, 1109 (N.D. Cal. 2009) (denying the accused infringer’s post-trial motion for judgment as a matter of law of no willfulness, even though it had an opinion of counsel regarding noninfringement), *aff’d*, 616 F.3d 1357 (Fed. Cir. 2010); Order at 3–4, *Pioneer Corp. v. Samsung SDI Co.*, No. 2:06-CV-384 (DF) (E.D. Tex. Sept. 22, 2008) (denying accused infringer’s motion for summary judgment of no willfulness despite the existence of an opinion of counsel regarding both noninfringement and invalidity, stating that “[a] reasonable jury could . . . find that [the accused infringer] acted despite an objectively high likelihood that its actions constituted infringement”).

217. See, e.g., *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1337 (Fed. Cir. 2009).

a finding of no willfulness.²¹⁸ For example, in *Centocor Ortho Biotech, Inc. v. Abbott Laboratories*,²¹⁹ the district court granted the defendant's post-trial motion for judgment as a matter of law for a finding of no willfulness because "the issues of infringement and validity were hotly contested, close, and required an intensely factual inquiry."²²⁰ In addition, in *ResQNet.com, Inc. v. Lansa, Inc.*, the district court found that, "[w]hile [defendant] was ultimately unsuccessful in defending against infringement or proving invalidity," it had not been objectively reckless because "its arguments in these areas were substantial, reasonable, and far from the sort of easily-dismissed claims that an objectively reckless infringer would be forced to rely upon."²²¹ In addition, a "close call" on claim construction can also defeat a claim of objective recklessness.²²² And other potential defenses, such as the existence of a license, may prevent a willfulness finding as well.²²³

To code a case as having a "substantial" or "legitimate" defense to an infringement claim, the author required an explicit determination by the finder of fact. This almost always occurred in a written judicial decision on willfulness or enhanced damages. For instance, in *LG Display Co. v. AU Optronics Corp.*, the district court found the accused infringer's conduct was not willful after a bench trial because it had "maintained plausible and credible defenses to infringement and plausible and credible arguments concerning invalidity of the asserted patents."²²⁴ Similarly, in *National Oilwell Varco L.P. v. Pason Systems USA Corp.*, the district court denied an award of

218. See, e.g., *Black & Decker, Inc. v. Robert Bosch Tool Corp.*, 260 F. App'x 284, 291 (Fed. Cir. 2009) ("[B]oth legitimate defenses to infringement claims and credible invalidity arguments demonstrate the lack of an objectively high likelihood that a party took actions constituting willful infringement of a valid patent."); *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 585 F. Supp. 2d 583, 588 (D. Del. 2008) (concluding that "plausible or credible defenses to noninfringement and invalidity" must be considered in determining willfulness).

219. Order, *Centocor Ortho Biotech, Inc. v. Abbott Labs.*, No. 2:07-CV-139-TJW (E.D. Tex. Oct. 1, 2009) (on file with author).

220. *Id.* at 6.

221. *ResQNet.com, Inc. v. Lansa, Inc.*, 533 F. Supp. 2d 397, 420 (S.D.N.Y. 2008), *aff'd in part and vacated in part on other grounds*, 594 F.3d 860 (Fed. Cir. 2010).

222. See, e.g., *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1374 & n.4 (Fed. Cir. 2008) (affirming trial court's finding of no willful infringement because claim construction was a "sufficiently close question" and the disputed claim term was "susceptible to a reasonable construction under which [the accused infringer's] products did not infringe"); Order at 7, *Centocor Ortho Biotech, Inc. v. Abbott Labs.*, 669 F. Supp. 2d 756, 773 (E.D. Tex. 2009) (No. 2:07-Cv-130-TJW) (holding that a "close issue of claim construction" can be considered in determining "whether the first prong of *Seagate* is met"), *rev'd*, 636 F.3d 1341 (Fed. Cir. 2011).

223. *Wis. Alumni Research Found. v. Intel Corp.*, 656 F. Supp. 2d 898, 923-24 (W.D. Wis. 2009).

224. *LG Display Co. v. AU Optronics Corp.*, 722 F. Supp. 2d 466, 471 (D. Del. 2010); see also *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 692 F. Supp. 2d 487, 504 (M.D. Pa. 2010) (holding that the accused infringer "maintained a reasonable non-infringement defense, one that entitles it to a finding of non-willfulness").

enhanced damages despite a jury's finding of willfulness because the accused infringer had "advanced credible arguments that [the asserted] claims . . . are invalid on the basis of anticipation or obviousness, and the question was close." Therefore, "a substantial challenge to the validity of the claims in suit" existed.²²⁵

From the dataset, it appears that a substantial defense to infringement is the single best way to defeat a willfulness claim. The low odds ratio for this factor (0.124) suggest that an accused infringer is several times less likely to be found willful if it can establish that it had a substantial or credible defense to the patentee's infringement claim. Specifically, when a substantial defense existed, willfulness was found only 13% of the time (5 of 40 cases), compared to 57% of the time when no substantial defense was found (55 of 96 cases).²²⁶ This relationship is highly statistically significant ($p = 0.000$).

3. Copying

Before *Seagate*, deliberate copying of a patent invention was considered "strong evidence of willful infringement."²²⁷ For example, a recent study by Christopher Cotropia and Mark Lemley that examined copying in patent cases from January 2006 through February 2008 found that, except for

225. *Nat'l Oilwell Varco, L.P. v. Pason Sys. USA Corp.*, No. 03-CV-02579-RPM, 2009 WL 1193263, at *7-8 (D. Colo. Apr. 30, 2009); *see also* *Fisher-Price, Inc. v. Safety 1st, Inc.*, No. 01-051 GMS, 2008 WL 1976624, at *6 (D. Del. May 5, 2008) (denying enhanced damages because the accused infringer "relied on substantial defenses, both at trial and on appeal, which overcame nearly all of [the patentee]'s claims"). *But see* *Saint-Gobain Autover USA, Inc. v. Xinyi Glass N. Am., Inc.*, 707 F. Supp. 2d 737, 747 (N.D. Ohio 2010) (explicitly rejecting the accused infringer's argument that there was a close call on claim construction and awarding enhanced damages for willful infringement).

226. In fact, it is possible that these figures may actually *understate* the importance of a substantial or legitimate defense to infringement regarding willfulness. Because it was not possible to look into the "black box" of a jury's deliberations regarding willfulness, the coding instructions required a written finding to classify a case as having a substantial or legitimate defense. This meant a judicial decision—for instance, a summary judgment decision; a post-trial decision, such as a grant of JMOL on willfulness or a denial of enhanced damages because there was "close call" on infringement or invalidity; or findings of fact and conclusions of law in a bench trial—was necessary to code a case as having a substantial defense. Cases where a jury found no willfulness due to a substantial defense, but there was no post-trial judicial decision on the issue (for example, because the patentee did not file a motion for JMOL or new trial on willfulness), were classified as having "no substantial defense."

227. *L.A. Gear, Inc. v. Thom McAn Shoe Co.*, 988 F.2d 1117, 1127 (Fed. Cir.), *cert. denied*, 510 U.S. 908 (1993); *see also* *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1582 (Fed. Cir. 1989) ("[C]opying is evidence of willful infringement."), *cert. denied*, 493 U.S. 1022 (1990); *Kaufman Co. v. Lantech, Inc.*, 807 F.2d 970, 978 (Fed. Cir. 1986) (affirming district court's finding of willfulness and award of double damages when infringer "faithfully copied the claimed invention").

Hatch–Waxman litigation, “successful proof of copying overwhelmingly leads to a finding of willfulness.”²²⁸

After *Seagate*, evidence of copying is relevant “to *Seagate*’s second prong, as it may show what the accused infringer knew or should have known about the likelihood of its infringement.”²²⁹ For example, in *Minks v. Polaris Industries, Inc.*, the Federal Circuit affirmed the jury’s finding of willfulness and the district court’s award of double enhanced damages when it was “fairly clear” the infringer had “deliberately copied [the patentee’s] patented reverse speed limiter.”²³⁰ Similarly, in *Finjan Software, Ltd. v. Secure Computing Corp.*, after a jury found willful infringement, the district court denied the infringer’s post-trial motion for judgment as a matter of law on willfulness because the patentee had “offered evidence indicating that [the infringer] used the Finjan patents as a ‘road map’ to develop its [own software] products.”²³¹

Based on the data collected in this study, copying remains an important consideration for willfulness after *Seagate*. When a patentee offered evidence of copying by the accused infringer,²³² willfulness was found almost two-thirds (63.3%) of the time (38 of 60 cases). In contrast, when there was no evidence that the accused infringer had copied, willfulness was found less than a third (29.0%) of the time (22 of 76 cases), a difference that was highly statistically significant ($p = 0.003$). Copying was particularly important

228. Cotropia & Lemley, *supra* note 165, at 1455. In their study, Cotropia and Lemley examined court opinions and found that copying was alleged in slightly over a quarter of cases (26%) that decided willfulness. *Id.* at 1454. In the present dataset, patentees were found to present evidence of copying at a somewhat higher rate (43%). This is likely due to the fact that the author reviewed court filings such as pretrial and post-trial motions and, in a substantial number of cases, trial transcripts, regarding willfulness and enhanced damages. Some of these sources included evidence or allegations of copying that was not explicitly referenced in a court opinion.

229. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1336 (Fed. Cir. 2009). However, evidence of copying is *not* relevant to *Seagate*’s first, objective prong because “[t]he state of mind of the accused infringer is not relevant to this objective inquiry.” *Id.* (alteration in original) (internal quotation marks omitted) (quoting *In re Seagate Tech, LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc)).

230. *Minks v. Polaris Indus. Inc.*, 546 F.3d 1364, 1381 (Fed. Cir. 2008) (quoting *Minks v. Polaris Indus., Inc.*, No. 6:05-cv-1894-Orl-31KRS, 2007 WL 788418, at *1 (M.D. Fla. Mar. 14, 2007) (internal quotation mark omitted)).

231. *Finjan Software, Ltd. v. Secure Computing Corp.*, No. 06-369 (GMS), 2009 WL 2524495, at *1, *8 (D. Del. Aug. 18, 2009), *aff’d in part, rev’d in part sub nom.* *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197 (Fed. Cir. 2010); *see also* Order at 5, 9, *DataTreasury Corp. v. Wells Fargo & Co.*, No. 2:06-CV-72 DF (E.D. Tex. Sept. 27, 2010), 2010 WL 5140718, at *3, *5 (awarding enhanced damages of \$26.6 million in part because “[p]laintiff has presented some circumstantial evidence of copying”).

232. Under the coding instructions, a case was classified as involving copying where the patentee “offered evidence that the accused infringer copied the patentee’s invention.” This differs from Cotropia & Lemley’s study, which evaluated whether there was a “*finding of willfulness*” in a judicial opinion. Cotropia & Lemley, *supra* note 165, at 1453–54 (emphasis added).

when judges made the final decision on willfulness, as the absence of any evidence of copying almost always (92.3%) resulted in a finding of no willfulness (48 of 52 cases). This relationship also was highly statistically significant ($p = 0.003$). As a result, “copying [remains] good evidence of willful infringement.”²³³

4. Design Around

Numerous pre-*Seagate* decisions considered good-faith attempts to “design around” a patent as evidence of the accused infringer’s lack of willful intent.²³⁴ This factor continues to be relevant after *Seagate*. For example, in *Trading Technologies International, Inc. v. eSpeed, Inc.*, the Federal Circuit affirmed the district court’s grant of judgment as a matter of law of no willfulness because the infringer’s “[p]rompt redesign efforts and complete removal of infringing products in a span of a few months suggest that [the defendant] was not objectively reckless.”²³⁵ Similarly, in *Alloc, Inc. v. Norman D. Lifton Co.*, the district court granted summary judgment of no willful infringement when, *inter alia*, the defendant “took reasonable steps to design around” the patents-in-suit by adopting technology from an expired patent.²³⁶ Furthermore, the Federal Circuit Bar Association’s model instructions instruct the jury that it may consider whether the alleged infringer “attempted to design around the [asserted] patent” as evidence of its lack of willfulness.²³⁷

Based on the data in this study, however, it appears that evidence of the infringer attempting to design around a patent is often insufficient by itself to prevent a willfulness finding. In fact, willfulness findings were slightly higher—51.7% (15 of 29 cases)—when the accused infringer offered evidence that it had designed around the patented technology, as opposed to 42.1% of the time (45 of 107 cases) when such evidence was not offered. Furthermore, this relationship was not statistically significant ($p = 0.686$).

This unexpected outcome may be partly because accused infringers usually invoke a “design around” as a “defense” to evidence of deliberate copying. Over two-thirds of cases (69.0%, 20 of 29 cases) where the accused infringer attempted to prove a “design around” also included evidence of

233. *Id.* at 1454.

234. *See, e.g.*, *Spindelfabrik Suessen-Schurr Stahlecker & Grill GmbH v. Schubert & Salzer Maschinenfabrik Aktiengesellschaft*, 829 F.2d 1075, 1084 (Fed. Cir. 1987) (“We have noted a good faith effort to ‘design around’ as indicating support for a non-willful finding.”), *cert. denied*, 484 U.S. 1063 (1988).

235. *Trading Techs. Int’l, Inc. v. eSpeed, Inc.*, 595 F.3d 1340, 1358 (Fed. Cir. 2010); *see also* *14i Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 860 (Fed. Cir. 2010) (considering the fact that “Microsoft did not . . . attempt to design around” the patent-in-suit after becoming aware of it as evidence of willfulness), *aff’d on other grounds*, 131 S. Ct. 2238 (2011).

236. *Alloc, Inc. v. Norman D. Lifton Co.*, 653 F. Supp. 2d 469, 476 (S.D.N.Y. 2009).

237. FED. CIR. MODEL PATENT JURY INSTRUCTIONS, *supra* note 187, § 3.8(4).

copying. This relationship was highly statistically significant ($p = 0.002$). Indeed, some courts have recognized the connection between a “design around” and copying. For example, in *Read Corp. v. Portec, Inc.*, the district court characterized the defendant’s conduct as copying and refused to overturn the jury’s verdict of “willful and wanton infringement.”²³⁸ On appeal, the Federal Circuit reversed, recognizing that while the patentee’s product “served as the starting point for [the defendant’s] design efforts,” it had adopted “specific changes . . . to avoid infringement” of the patents-in-suit.²³⁹ However, the Federal Circuit also cautioned that “determining when a patented device has been ‘designed around’ enough to avoid infringement is a difficult determination to make” and that in many cases a potential infringer “cannot know for certain that changes are sufficient to avoid infringement until a judge or a jury has made that determination.”²⁴⁰ Ultimately, when the patentee and accused infringer both offer evidence of copying and a “design around,” respectively, the jury can only believe one of them—and it appears they are generally siding with the patentee.

5. Reexamination

Some accused infringers also have sought to use the fact that a patent-in-suit has been subject to reexamination by the PTO as a defense to a claim of willfulness.²⁴¹ A request for reexamination can be made by anyone, including an accused infringer, and is granted when it raises a “substantial new question of patentability affecting any claim of the patent,” regardless of whether the asserted prior art “was previously cited by or to the [PTO] or considered by the [PTO]” during original examination.²⁴² In recent years, over 90% of requests for reexamination have been granted by the PTO.²⁴³ Indeed, requests for reexamination—either *ex parte* or *inter partes*—are increasingly used as a tactic by accused infringers in patent-infringement cases, in an attempt to invalidate part or all of the asserted claims of the

238. *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 828 (Fed. Cir. 1992), *abrogated in part by* *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995).

239. *Id.*

240. *Id.*

241. MATTHEW A. SMITH, INTER PARTES REEXAMINATION § 12.12 (2010); *see also* Robert Greene Sterne et al., *Reexamination Practice with Concurrent District Court Litigation or Section 337 USITC Investigations*, 10 SEDONA CONF. J. 115, 135 (2009) (“Another extremely hot topic in concurrent reexamination and litigation is the use of reexaminations as a defense against willful infringement.”).

242. 35 U.S.C. § 303 (2006).

243. *See* U.S. PATENT & TRADEMARK OFFICE, EX PARTE REEXAMINATION FILING DATA—SEPTEMBER 30, 2010 ¶ 5 (2010) (noting that 92% of *ex parte* requests for reexamination have been granted since July 1, 1981), *available at* <http://reexamcenter.com/wp-content/uploads/2010/01/2010-09-30-Ex-Parte.pdf>; U.S. PATENT & TRADEMARK OFFICE, INTER PARTES REEXAMINATION FILING DATA—SEPTEMBER 30, 2010 ¶ 5 (2010) (noting that 96% of *inter parte* requests for reexamination have been granted since November 29, 1999), *available at* <http://reexamcenter.com/wp-content/uploads/2010/01/2010-09-30-Inter-Partes.pdf>.

patent(s)-in-suit, to delay litigation, or to force the patentee to reach an early settlement.²⁴⁴

At present, there is a conflict in the lower courts as to whether a reexamination proceeding is relevant to willfulness. Shortly after *Seagate*, one district court granted summary judgment of no willful infringement based in part on the PTO's order granting a reexamination request.²⁴⁵ The court held that, while it did "not assume that a reexamination order will always prevent a plaintiff from meeting their burden on summary judgment regarding willful infringement," a reexamination order is "one factor among the totality of the circumstances" to consider.²⁴⁶ Several other decisions have reached similar conclusions.²⁴⁷ At least two other district courts, however, have held that pending reexamination proceedings should not be considered in determining willfulness.²⁴⁸

244. See, e.g., Robert A. Matthews, Jr., *Legal Nuances When a Patent-Holding Company Seeks To Enforce a U.S. Patent*, 49 IDEA 549, 576 (2009) ("A litigation tactic that has gained in popularity over the last several years involves an accused infringer—after being served with an infringement complaint—seeking an *ex parte* or *inter partes* reexamination in the PTO and then requesting that the district court stay the infringement litigation pending the outcome of the reexamination proceeding." (footnote omitted)); Roger Shang, *Inter Partes Reexamination and Improving Patent Quality*, 7 NW. J. TECH. & INTELL. PROP. 185, 198 (2009) ("[C]hallengers may abuse the [reexamination] procedure by filing inter partes reexamination requests not to invalidate patents on the merits, but merely as a delay tactic, hoping that the reexamination will convince a court to stay patent infringement litigation launched against the challenger."); Joseph Rosenbloom, *The Reexamination Gamble*, IP L. & BUS., July 2008, at 31, 32 (explaining that requests for reexamination related to litigation increased from 116 in 2003 to 450 in 2007).

245. *Lucent Techs., Inc. v. Gateway, Inc.*, No. 07-CV-2000-H(CBA) et al., 2007 WL 6955272, at *9 (S.D. Cal. Oct. 30, 2007).

246. *Id.* at *7.

247. See, e.g., *Safoco, Inc. v. Cameron Int'l Corp.*, No. H-05-0739, 2009 WL 2424108, at *20 (S.D. Tex. July 31, 2009) ("[T]he granting of a reexamination request by the USPTO is only a single factor to consider and is not dispositive as to the objective prong of the willful infringement standard."); *TGIP, Inc. v. AT&T Corp.*, 527 F. Supp. 2d 561, 579 (E.D. Tex. 2007) (granting judgment as a matter of law of no willfulness in part because "[t]he patentee was concerned enough to ask for reexamination" of the patent-in-suit, *appeal dismissed as per agreement*, 274 F. App'x 890 (Fed. Cir. 2008); cf. *Pivonka v. Cent. Garden & Pet Co.*, No. 02-cv-02394-RPM, 2008 WL 486049, at *2 (D. Colo. Feb. 19, 2008) (holding that a preliminary order in an interference proceeding determining that the claims of the patent-in-suit were obvious meant the patentee "cannot meet [its] burden of proving by clear and convincing evidence that the defendants acted despite an objectively high likelihood that [its] actions constituted infringement of a valid patent" after *Seagate*).

248. *Krippelz v. Ford Motor Co.*, 675 F. Supp. 2d 881, 894-95 (N.D. Ill. 2009) (concluding that "the grant of a reexamination and interim PTO rejections are not probative (i.e., not relevant, and therefore not admissible) evidence on the question of patentability" and thus "cannot be considered to have decreased the objective likelihood that [the defendant] was infringing a valid patent"); *Presidio Components Inc. v. Am. Technical Ceramics Corp.*, No. 08-CV-335-IEG (NLS), 2009 WL 3822694, at *2 (S.D. Cal. Nov. 13, 2009) (excluding evidence of a reexamination proceeding initiated by the accused infringer on the issue of willfulness because the reexamination had "very little probative value" and "the prejudicial effect as well as potential for jury confusion [was] great").

There is also a potentially important difference in whether a reexamination proceeding was still pending when willfulness was decided or whether the reexamination already had been decided in the patentee's favor.²⁴⁹ For example, in *St. Clair Intellectual Property Consultants, Inc. v. Matsushita Electronic Industrial Co.*, the district court permitted the patentee to amend its complaint to add an allegation of willful infringement, rejecting the defendant's argument that a grant of reexamination by the PTO defeated a claim for willful infringement per se.²⁵⁰ Rather, the court explained that because the reexamination proceeding had "resulted in the issuance of reexamination certificates for each of the patents-in-suit without amendment to any of the claims," the willfulness claim was not futile or made without a sufficient evidentiary basis.²⁵¹ Likewise, in *Safoco, Inc. v. Cameron International Corp.*, the district court held "the *outcome* of a reexamination proceeding is far more persuasive . . . as to whether the defendant acted 'despite an objectively high likelihood that its actions constituted infringement of a valid patent,' than the mere fact that a reexamination proceeding occurred."²⁵² As a result, all cases that involved a reexamined patent were coded into two separate categories: (1) whether the reexamination proceeding had been resolved by the PTO—either by issuance of a Reexamination Certificate, or a Notice of Intent to do so—*before* willfulness was decided; and (2) whether the reexamination request had been granted but was *still pending* at the PTO when willfulness was decided.

Ultimately, however, it appears that neither type of reexamination—decided or still pending—had much effect on willfulness decisions. Cases where a reexamination was still pending when willfulness was decided had a slightly lower percentage (40%, 4 of 10 cases) of willfulness findings than cases that did not involve any reexamination (43.4%, 46 of 106 cases). And willfulness was found at a slightly higher rate in cases where a reexamination had already been concluded in the patentee's favor (50%, 10 of 20 cases). But these small differences were not statistically significant ($p = 0.819$).

6. Bifurcation

The final factor studied is whether bifurcation—deciding the issue of willfulness separately at trial—had a meaningful effect on willfulness decisions. Federal Rule of Civil Procedure 42(b) provides that "[f]or

249. In contrast, if a court decided the reexamination proceeding *against* the patentee by rejecting the asserted claim(s), infringement would no longer be an issue.

250. *St. Clair Intellectual Prop. Consultants, Inc. v. Matsushita Elec. Indus. Co.*, No. 04-1436-JJF-LPS, 2009 WL 1649675, at *1-3 (D. Del. June 10, 2009), *objections overruled*, 2009 WL 2340650 (D. Del. July 28, 2009).

251. *Id.* at *2.

252. *Safoco, Inc. v. Cameron Int'l Corp.*, No. H-05-0739, 2009 WL 2424108, at *20 (S.D. Tex. July 31, 2009) (internal citation omitted).

convenience, to avoid prejudice, or to expedite and economize, the [district] court may order a separate trial of one or more separate issues, claims, crossclaims, counterclaims, or third-party claims.”²⁵³ In patent litigation, Rule 42(b) has been employed by some courts to bifurcate liability from willfulness and damages.²⁵⁴ Indeed, before *Seagate*, the Federal Circuit stated that “a separate trial on willfulness” is often advisable if an accused infringer is “forced to choose between waiving the privilege in order to protect itself from a willfulness finding, in which case it may risk prejudicing itself on the question of liability, and maintaining the privilege, in which case it may risk being found to be a willful infringer if liability is found.”²⁵⁵ Willfulness may also be tried separately because it risks inflaming and prejudicing the jury.²⁵⁶ However, bifurcation is ultimately a matter for the trial court’s discretion,²⁵⁷ and numerous courts have denied requests to bifurcate willfulness due to concerns about the time, expense, and delay associated with a second trial and because evidence regarding liability and willfulness often overlap, resulting in potential prejudice to the patentee.²⁵⁸

The data reveal that the willfulness was bifurcated in almost a fifth (18.6%) of cases studied. Bifurcation was much more common when a judge finally decided the issue of willfulness (45.7%, 16 of 35 cases)

253. FED. R. CIV. P. 42(b).

254. See, e.g., *Dutch Branch of Streamserve Dev. AB v. Exstream Software, LLC*, No. 08-343-SLR, 2009 WL 2705932, at *1 (D. Del. Aug. 26, 2009) (finding that bifurcation of willfulness and damages “is appropriate, if not necessary, in all but exceptional patent cases”); *Aptargroup, Inc. v. Owens-Ill., Inc.*, No. 02 C 5058, 2003 WL 21557632 (N.D. Ill. July 3, 2003) (bifurcating willfulness from liability); *Yamaha Hatsudoki Kabushiki Kaisha v. Bombardier Inc.*, 59 U.S.P.Q.2d 1088 (C.D. Cal. 2001) (same).

255. *Quantum Corp. v. Tandon Corp.*, 940 F.2d 642, 643-44 (Fed. Cir. 1991); see also *Fromson v. W. Litho Plate & Supply Co.*, 853 F.2d 1568, 1572 (Fed. Cir. 1988) (stating that bifurcation “may be useful in meeting the attorney-client privilege problem”), *overruled by Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337 (Fed. Cir. 2004).

256. See, e.g., *Robert Bosch LLC v. Pylon Mfg. Corp.*, No. 08-542-SLR, 2009 WL 2742750, at *1 (D. Del. Aug. 26, 2009) (granting request to bifurcate willfulness because it “is an intrusive and inflammatory issue to discover and try”).

257. *Shum v. Intel Corp.*, 499 F.3d 1272, 1276 (Fed. Cir. 2007).

258. See, e.g., *Lutron Elecs. Co. v. Crestron Elecs., Inc.*, No. 2:09 CV 707 DB, 2010 WL 2024510 (D. Utah May 19, 2010) (denying request to bifurcate willfulness claim); *Trading Techs. Int’l, Inc. v. eSpeed, Inc.*, 431 F. Supp. 2d 834, 841 (N.D. Ill. 2006) (“Bifurcation would result in prejudice to plaintiff, who, along with facing a substantial delay in final determination of the action, would be forced to present the same evidence in two separate trials.”); *Real v. Bunn-O-Matic, Corp.*, 195 F.R.D. 618, 620 (N.D. Ill. 2000) (“Bifurcation in patent cases, as in others, is the exception, not the rule.”); see also *Brief for Amicus Curiae Am. Intel. Prop. Law Ass’n at 4, Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337 (Fed. Cir. 2004) (Nos. 01-1357 et al.), 2003 WL 24305263, at *4 (“Many courts are unwilling to bifurcate because two trials require more time and resources and, sometimes, implicate Seventh Amendment issues. Moreover, even with bifurcation, the focal point of the willfulness inquiry remains the legal advice obtained by the infringer, and the attorney-client relationship is still compromised.”).

compared to juries (4.5%, 3 of 67 cases). A similar but less pronounced difference was found in Judge Moore's study; she determined that in 1999–2000, willfulness was bifurcated in 48.6% of bench trials and 21.7% of jury trials. Judge Moore explained these findings on the basis of convenience, noting that “[i]t is simply easier for the [district] court to conduct a single trial with one jury and to have them answer all the liability and damages questions at one time.”²⁵⁹

In terms of raw numbers, willfulness was found less frequently when it was bifurcated—willfulness was found in 31.6% of bifurcated cases (6 of 19 cases), compared to 57.8% of the time when it was not bifurcated (48 of 83 cases). However, this result was not statistically significant in a multivariable logistic regression that controlled for all other factors ($p = 0.343$). This may be partially due to the high degree of correlation between bifurcation and bench trials, as judges are much less likely to find willfulness than juries after *Seagate*.

C. ENHANCED DAMAGES

1. Standard

The final research question was whether *Seagate* had an impact on enhanced-damages awards. An award of enhanced damages for willful patent infringement involves a two-step process. First, the fact finder at trial—the jury or judge—“must determine if an accused infringer is guilty of conduct, such as willfulness, upon which increased damages may be based.”²⁶⁰ If willfulness is found, the district court then must “exercise[] its discretion to determine if the damages should be increased given the totality of the circumstances.”²⁶¹ Thus, a finding of willfulness does not mandate an award of enhanced damages but merely permits it.²⁶²

Seagate does not directly control whether enhanced damages should be awarded.²⁶³ Rather, “the standard for deciding whether—and by how much—to enhance damages” was set forth by the Federal Circuit in *Read Corp. v. Portec, Inc.*²⁶⁴ *Read* identified nine factors for courts to consider regarding enhancement:

259. Moore, *supra* note 6, at 235.

260. *Mentor H/S, Inc. v. Med. Device Alliance, Inc.*, 244 F.3d 1365, 1380 (Fed. Cir. 2001) (citing *Jurgens v. CBK, Ltd.*, 80 F.3d 1566, 1570 (Fed. Cir. 1996)).

261. *Id.*

262. *In re Seagate Tech., LLC*, 497 F.3d 1360, 1368 (Fed. Cir. 2007) (en banc), *cert. denied*, 552 U.S. 1230 (2008).

263. *See* *i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 859 (Fed. Cir. 2010) (“The test for willfulness is distinct and separate from the factors guiding a district court’s discretion regarding enhanced damages.”), *aff’d on other grounds*, 131 S. Ct. 2238 (2011).

264. *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 826–27 (Fed. Cir. 1992), *abrogated in part by* *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995); *see also* *Spectrallytics, Inc. v. Cordis Corp.*, No. 2009-1564, 2010-1004, 2011 WL 2307402, at *10 (Fed. Cir. June 13, 2011)

- (1) “whether the infringer deliberately copied the ideas or design 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 accused infringer’s “size and financial condition”;
- (5) the “[c]loseness of the case”;
- (6) the “[d]uration of [infringer]’s misconduct”;
- (7) whether the infringer took any “[r]emedial action”;
- (8) whether the infringer had a “motivation [to] harm” the patentee; and
- (9) whether the infringer “attempted to conceal its misconduct.”²⁶⁵

Notably, there is substantial overlap between many of the *Read* factors for enhanced damages and post-*Seagate* factors for finding willfulness. For example, copying is relevant to both willfulness and enhanced damages. Similarly, the “closeness of the case” factor is usually satisfied when the accused infringer has a substantial defense to infringement. And “remedial action” may include an accused infringer’s attempt to design around the patent.

2. Enhanced Damages Before and After *Seagate*

For several reasons, the author hypothesized that after *Seagate*, there would probably be a substantial increase in the percentage of cases that awarded enhanced damages for willfulness.²⁶⁶ First, if *Seagate*’s “objective recklessness” standard limited willfulness to only the clearest and most egregious cases, as commentators suggested,²⁶⁷ then enhanced damages should be routinely awarded after *Seagate*. In addition, the overlap between the *Read* factors for enhanced damages and post-*Seagate* willfulness factors

(“*Seagate* did not change the application of the *Read* factors with respect to enhancement of damages when willful infringement under § 285 is found.”).

^{265.} *Read Corp.*, 970 F.2d at 827; *see also* *Funai Electric Co., v. Daewoo Elecs. Corp.*, 616 F.3d 1357, 1376–77 (Fed. Cir. 2010) (affirming the district court’s decision applying the *Read* factors and denying patentee’s request for enhanced damages); *iqi*, 598 F.3d at 858–59 (affirming district-court decision applying the *Read* factors and awarding patentee \$40 million in enhanced damages).

^{266.} A decision on enhanced damages was classified as “after *Seagate*” when enhanced damages were awarded after August 20, 2007, the date of the *Seagate* decision.

^{267.} *See supra* notes 98–104 and accompanying text.

also suggested enhanced damages would be awarded most times when willfulness was found.

	Before <i>Seagate</i> (Sept. 2004–Aug. 2007)	After <i>Seagate</i> (Aug. 2007–July 2010)
Enhanced Damages Awarded	81.4%** (35 of 43)	54.9%** (28 of 51)
$p = 0.006$		

**Table 6: Enhanced Damages Before and After *Seagate*²⁶⁸
(Willfulness Found and Enhanced Damages Requested)**

Surprisingly, this hypothesis was rejected by the empirical data. As illustrated in Table 6, awards of enhanced damages after a finding of willfulness decreased from about 80% before *Seagate* (81.4%) to slightly over half (54.9%) after *Seagate*. This difference was highly statistically significant ($p = 0.006$) using Pearson's chi-square (χ^2) test.

Another issue is whether enhanced damages were awarded at different rates depending on whether a judge or a jury found willfulness, both before and after *Seagate*. Judge Moore's previous study of willfulness from 1983 through 1999 found such a difference: damages were enhanced in the vast majority of cases (95%) where a judge found willfulness but less than two-thirds of the time (63%) when a jury found willfulness.²⁶⁹

268. The number of enhanced-damages awards is lower than the total number of willfulness findings for both the pre-*Seagate* (44 of 66 cases) and post-*Seagate* (50 of 64 cases) periods for several reasons. First, in a substantial number of cases, the parties settled after a finding of willful infringement, but before the district court could decide the patentee's request for enhanced damages. *See, e.g.,* VirnetX, Inc. v. Microsoft Corp., No. 6:07 CV 80, 2009 WL 2370727 (E.D. Tex. July 30, 2009); 3Com Corp. v. Realtek Semiconductor Corp., No. C 03-2177 VRW, 2008 WL 783383 (N.D. Cal. Mar. 24, 2008); LifeNet, Inc. v. Musculoskeletal Transplant Found., Inc., 490 F. Supp. 2d 681 (E.D. Va. 2007). Second, in some cases, the patentee did not request an enhanced-damage award, even though willfulness was found. This occurred, for example, when the amount of monetary damages awarded was low or when patentees requested only an award of attorney's fees, which is another potential remedy for willfulness. *See supra* notes 32–35 and accompanying text. Finally, there were several post-*Seagate* cases where the patentee's enhancement request was still pending at the conclusion of the study period. *See, e.g.,* K-TEC, Inc. v. Vita-Mix Corp., No. 2:06-CV-108-TC, 2010 WL 2079682 (D. Utah May 24, 2010); WhitServe LLC v. Computer Packages, Inc., No. 3:06CV01935 (AVC), 2007 WL 2028764 (D. Conn. July 11, 2007).

269. Moore, *supra* note 59, at 394.

	Before <i>Seagate</i>	After <i>Seagate</i>	
Jury Found Willfulness	80.6% (29 of 36)	48.8%** (21 of 43)	$p = 0.004$
Judge Found Willfulness	85.7% (6 of 7)	87.5%* (7 of 8)	$p = 1.000$
	$p = 1.000$	$p = 0.044$	

Table 7: Enhanced Damages, Judge vs. Jury Finding of Willfulness

Table 7 shows that before *Seagate*, there was no statistically significant difference ($p = 1.000$) using Fisher's exact test whether a jury or judge decided willfulness: district courts awarded enhanced damages over 80% of the time in both situations (80.6% when the jury found willfulness, compared to 85.7% when a judge found willfulness). However, there was a notable change after *Seagate*, as enhanced damages were awarded less than half the time (48.8%) after a jury finding of willfulness. This difference with pre-*Seagate* jury trials was highly statistically significant ($p = 0.004$) using Pearson's chi-square (χ^2) test. It also represented a large difference compared to judicial findings of willfulness, which resulted in enhanced damages almost all of the time (87.5%). This difference was statistically significant ($p = 0.044$) using Pearson's chi-square (χ^2) test.

Based on this data, it appears that district courts, after *Seagate*, are simply declining to award enhanced damages, rather than overturning questionable jury findings of willfulness.²⁷⁰ It has long been recognized that when the evidence supporting a jury's willfulness findings is relatively weak, it is appropriate for the district court to not award enhanced damages.²⁷¹ Furthermore, for a district court concerned about potential review by the

270. See, e.g., *Mass Engineered Design, Inc. v. Ergotron, Inc.*, 633 F. Supp. 2d 361, 379–80, 390–92 (E.D. Tex. 2009) (declining to overturn jury's finding of willfulness but declining to award enhanced damages, explaining that “a court can refrain from awarding enhanced damages in light of a finding of willfulness based on the weight of the evidence supporting willfulness and the closeness of the issues at trial”); *Telcordia Techs., Inc. v. Cisco Sys., Inc.*, 592 F. Supp. 2d 727, 750 (D. Del. 2009) (“Although the jury found that Cisco's infringement . . . was willful, the court finds that the evidence was not strong enough to warrant enhanced damages.”), *aff'd in part, vacated in part, and remanded on other grounds*, 612 F.3d 1365 (Fed. Cir. 2010); *Fisher-Price, Inc. v. Safety 1st, Inc.*, No. 01-051 GMS, 2008 WL 1976624, at *6–7 (D. Del. May 5, 2008) (declining to award enhanced damages and denying as moot defendant's post-trial motion for judgment as a matter of law on willfulness).

271. See, e.g., *Laitram Corp. v. NEC Corp.*, 115 F.3d 947, 955 (Fed. Cir. 1997) (affirming the district-court decision denying enhanced damages despite willfulness finding by jury “because of the closeness of both the infringement and willfulness issues”); *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1582 (Fed. Cir. 1992) (holding that when “the evidence supporting the jury's finding [of willfulness] was not as strong as it could have been,” enhanced damages may be denied (quoting *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 757 F. Supp. 1088, 1097 (S.D. Cal 1990)) (internal quotation marks omitted)).

Federal Circuit, the Federal Circuit is less likely to reverse a denial of enhanced damages on appeal. An award of enhanced damages is within the trial court's discretion and will not be disturbed on appeal unless this discretion has been abused.²⁷² In contrast, a jury finding of willful infringement can be overturned only if the verdict is not supported by substantial evidence²⁷³ or if the jury was improperly instructed about the law governing willfulness.²⁷⁴ In addition, because willfulness usually requires a jury to evaluate the accused infringer's "intent, belief, and credibility,"²⁷⁵ "a finding of willful infringement [must] be sustained unless the reviewing court has a definite and firm conviction that the [jury] erred."²⁷⁶ Thus, after *Seagate*, district courts appear to use enhanced damages "as a check to temper jury findings on willfulness."²⁷⁷

3. Amount of Enhancement

Another important issue is the amount of enhanced damages. If enhanced damages are granted, the district court has the discretion to determine the amount of enhancement, up to three times the award of compensatory damages.²⁷⁸ "The amount of enhancement must bear some relationship to the level of culpability of the [infringer's] conduct."²⁷⁹

272. *E.g.*, *ACCO Brands, Inc. v. ABA Locks Mfr. Co.*, 501 F.3d 1307, 1312 (Fed. Cir. 2007); *Electro Scientific Indus., Inc. v. Gen. Scanning Inc.*, 247 F.3d 1341, 1349 (Fed. Cir. 2001); *cf.* *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1461 (Fed. Cir. 1998) (en banc) ("[T]here is no merit to the argument that a finding of willfulness but a denial of enhanced damages is necessarily an abuse of discretion.").

273. *See, e.g.*, *Braun Inc. v. Dynamics Corp. of Am.*, 975 F.2d 815, 822 (Fed. Cir. 1992).

274. *See Voda v. Cordis Corp.*, 536 F.3d 1311, 1328 (Fed. Cir. 2008) (vacating finding of willfulness and remanding for determination when the district court improperly instructed the jury after *Seagate*, and this error was not harmless because it "may have changed the result of the jury verdict").

275. *SRI Int'l, Inc. v. Advanced Tech. Labs., Inc.*, 127 F.3d 1462, 1465 (Fed. Cir. 1997) (citing *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1571 (Fed. Cir. 1996)).

276. *Id.* (citing *Electro Med. Sys., S.A. v. Cooper Life Scis., Inc.*, 34 F.3d 1048, 1057 (Fed. Cir. 1994)).

277. Moore, *supra* note 59, at 394.

278. *See, e.g.*, *Transclean Corp. v. Bridgewood Servs., Inc.*, 290 F.3d 1364, 1378 (Fed. Cir. 2002) ("[T]he district court enjoys discretion to choose whether to award enhanced damages to the claimant and in what amount. This discretion, however is limited to a trebling of the basic damage award." (quoting *Signtech USA, Ltd. v. Vutek, Inc.*, 174 F.3d 1352, 1358-59 (Fed. Cir. 1999)) (internal quotation marks omitted)).

279. *Graco, Inc. v. Binks Mfg. Co.*, 60 F.3d 785, 794 n.4 (Fed. Cir. 1995); *see also* BRYAN W. BUTLER, PATENT INFRINGEMENT: COMPENSATION AND DAMAGES § 7.02[4][b] (2010) ("[T]he actual amount of the award [of enhanced damages] may be adjusted to match the level of egregiousness of the defendant's conduct.").

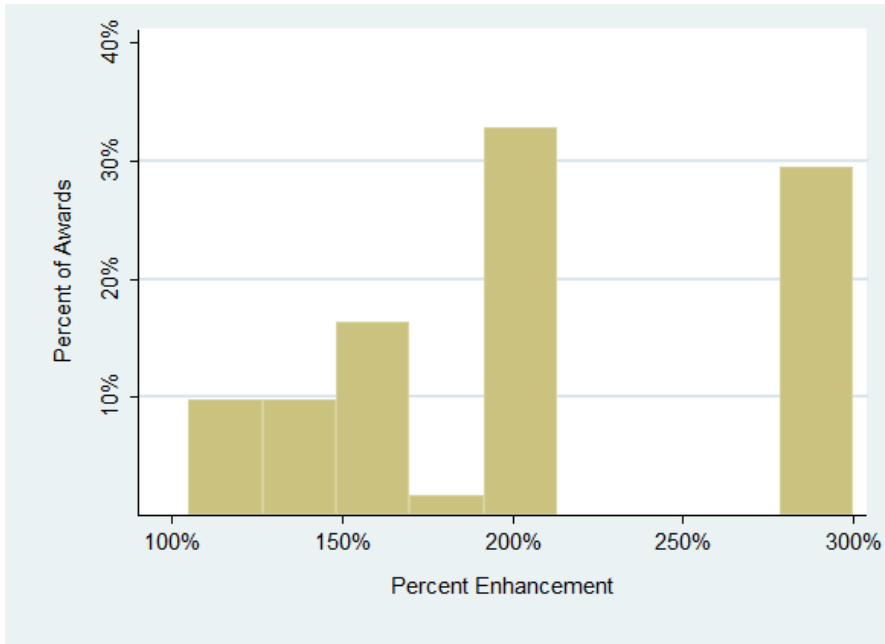


Figure 3: Amount of Enhancement, Sept. 2004–July 2010

Figure 3 depicts the amount of enhanced damages awarded during the entire study period, expressed as a percentage of compensatory damages. In other words, a figure of 150% represents a 50% enhancement compared to compensatory damages, while 300% represents treble damages (the maximum amount permitted by statute).

As shown above, less than a third of enhanced-damages awards during the entire study period (both before and after *Seagate*) were for treble damages. In fact, most (over 70%) enhanced-damages awards were for double damages or less.²⁸⁰ The mean enhancement was 207%. This figure is higher than the amount of enhancement found in Judge Moore’s study, which found an average enhancement of 169%.²⁸¹

Another issue examined was whether there was a statistically significant difference in the amount of enhancement before and after *Seagate*. As with enhanced damages generally, the author hypothesized that the amount of enhancement would be higher after *Seagate* because, if the conventional wisdom was correct, only truly egregious cases would be found willful under *Seagate*’s “objective recklessness” standard. As a result, the author expected that post-*Seagate* willful infringers would be punished more harshly for their

280. Slightly fewer than 40% of all enhanced-damages awards are for less than double damages (under 200%), and about 30% are for double damages (200%).

281. Moore, *supra* note 59, at 394.

misconduct than the pre-*Seagate* cohort. However, this prediction was incorrect as well.

	Before <i>Seagate</i> (Sept. 2004–Aug. 2007)	After <i>Seagate</i> (Aug. 2007–July 2010)
Mean Enhancement	213% <i>n</i> = 35	198% <i>n</i> = 26
<i>p</i> = 0.399 R ² = 0.0121		

Table 8: Mean Enhancement Before and After *Seagate*²⁸²

As indicated in Table 8, the amount of enhancement after *Seagate* was actually slightly lower. Before *Seagate*, the mean enhancement was slightly greater than double damages (213%), while after *Seagate*, the mean enhancement was slightly less than double damages (198%). Using regression analysis, this difference was not statistically significant (*p* = 0.399). In an attempt to understand this unexpected outcome, the author further examined the post-*Seagate* enhanced-damages awards to determine if there was a difference in enhancement based on whether a jury or judge found willfulness.

	Jury Found Willfulness	Judge Found Willfulness
Mean Enhancement	182%* <i>n</i> = 19	243%* <i>n</i> = 7
<i>p</i> = 0.025 R ² = 0.1930		

Table 9: Mean Enhancement After *Seagate*, Judge vs. Jury Finding of Willfulness

Using regression analysis, there was a statistically significant (*p* = 0.025) difference after *Seagate* in enhancement depending on whether a jury or judge had found willfulness at trial. As depicted in Table 9, mean

²⁸² In one case, the amount of enhancement could not be determined because this information was under seal in both the lower and appellate court records. See *Spine Solutions, Inc. v. Medtronic Sofamor Danek USA, Inc.*, No. 07-CV-2175-JPM-dKV, 2008 WL 4831770 (W.D. Tenn. July 2, 2008), *aff'd*, 620 F.3d 1305 (Fed. Cir. 2010). In another case, the district court granted the patentee's motion to enhance damages, but the court's docket entry did not identify the amount of enhancement. See *LG, Philips LCD Co. v. Chunghwa Picture Tubes, Ltd.*, No. cv 02-6775 CBM (JTLx) (C.D. Cal. Sept. 12, 2007) (order granting LG, Philips LCD Co. Ltd's motion for enhanced damages). The parties settled their dispute shortly thereafter. See Order re Rule 41 Stipulation of Dismissal, *Philips LCD Co. v. Chunghwa Picture Tubes, Ltd.* No. cv 02-6775 CBM (JTLx) (C.D. Cal. Mar. 25, 2008).

enhancement was 243% when a judge found willfulness, compared to a mean enhancement of 182% when a jury found willfulness. As a result, not only are enhanced damages awarded less often when juries find willfulness, the amount of enhancement is usually lower as well. This also partially explains the lower-than-expected overall mean enhancement after *Seagate*, as most post-*Seagate* decisions (over 70%) involved jury findings of willfulness.

V. CONCLUSION

The data collected in this study calls into question some of the conventional wisdom regarding *Seagate*'s impact on willful patent infringement. Most willfulness decisions are still made at trial, rather than through summary judgment or other pretrial motions. And courts still find willfulness close to 40% of the time after *Seagate*, despite expectations that its "objective recklessness" standard would be extremely difficult to satisfy. Notably, the difference between willfulness decisions before and after *Seagate* was not statistically significant.

Another important finding from this study is that willfulness decisions and enhanced-damage awards after *Seagate* vary greatly depending on whether a judge or a jury was the decisionmaker at trial. At trial, juries find willful infringement over 60% of the time, while in contrast, judges find willfulness less than one-third of the time (and less than one-quarter if preverdict JMOL decisions are included). This raises important questions about the potential competency and bias of jurors in deciding willfulness.

However, it also appears that district courts use their discretion regarding enhanced-damages awards as a "check" on willfulness findings by juries. After *Seagate*, enhanced damages are awarded less than half the time when a jury finds willfulness, while enhanced damages are nearly always awarded if willfulness is found after a bench trial. Further, the mean (average) enhancement after *Seagate* is significantly lower when a jury finds willfulness rather than a judge.

Finally, this study reached several important findings regarding the impact of common factors on willfulness after *Seagate*. Two factors were central to willful patent infringement: evidence of copying by the accused infringer was highly correlated with willfulness, while a "substantial" or "legitimate" defense to infringement was the strongest predictor of no willfulness. Surprisingly, however, neither opinions of counsel nor attempts to design around the patent had a statistically significant relationship with willfulness decisions. PTO reexaminations and bifurcation of willfulness also had no apparent impact on willfulness.