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PATENT INJUNCTIONS ON APPEAL: AN EMPIRICAL STUDY OF THE FEDERAL CIRCUIT'S APPLICATION OF *EBAY*

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Abstract: More than ten years after the United States Supreme Court's landmark decision in *eBay v. MercExchange*, the availability of injunctive relief in patent cases remains hotly contested. For example, in a recent decision in the long-running litigation between Apple and Samsung, members of the United States Court of Appeals for the Federal Circuit divided sharply on whether an injunction was warranted to prevent Samsung from continuing to infringe several smartphone features patented by Apple. To date, however, nearly all empirical scholarship regarding *eBay* has focused on trial court decisions, rather than the Federal Circuit.

This Article represents the first comprehensive empirical study of permanent injunction decisions by the Federal Circuit following *eBay*. Through an original dataset on appeals from almost 200 patent cases, we assess the impact of the Federal Circuit on the availability of permanent injunctions. The findings from this study indicate the Federal Circuit is generally more favorable to prevailing patentees regarding injunctive relief than the district courts following *eBay*. District courts that grant an injunction after a finding of liability are highly likely to be affirmed on appeal, whereas district courts that deny an injunction have a statistically significant lower affirmance rate. This suggests the Federal Circuit is generally inclined toward a property rule rather than a liability rule as a remedy against future patent infringement. It also appears to lend support to claims by scholars and others that the Federal Circuit, as a specialized court with a large number of patent cases, is more pro-patentee than the generalist district courts. Finally, the implications of this and other empirical findings from the study are considered.

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INTRODUCTION

Permanent injunctions are strong medicine in patent disputes. An injunction allows the patent owner to exclude others from using or practicing the patented technology without permission, under penalty of contempt of court.[1] When faced with the prospect of a court-ordered injunction, "an infringer likely will be willing to settle the suit by paying

1. *See* 35 U.S.C. §§ 283, 271(a) (2012) (preventing the infringer from making, using, selling, offering to sell, or importing any product that infringes the patent).

the patentee a higher price to practice the claimed invention,"[2] often by passing the price increase along to consumers.

Traditionally, nearly all patentees received a permanent injunction after prevailing on liability.[3] But the Supreme Court's decision in *eBay v. MercExchange*[4] significantly changed this calculus, especially for non-practicing patentees, sometimes referred to as "patent trolls."[5] Previous studies have found that after *eBay*, district courts "appear to have adopted a de facto rule against injunctive relief" for non-practicing patentees and other patent owners "who do not directly compete . . . against an infringer" in a product market.[6] This rule, however, is in considerable tension with the Supreme Court's holding that the trial court in *eBay* "erred in its categorical denial of injunctive relief" to a non-practicing patentee.[7] In short, *eBay* has given lower courts significantly more discretion in deciding when to grant or deny injunctive relief in patent cases, and the district courts' exercise of that discretion may conflict with the Supreme Court's admonition against categorical rules regarding entitlement to an injunction.

Although district courts' application of *eBay* has been widely studied,[8] the role of the United States Court of Appeals for the Federal

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2. Daniel C. Tucker, Note, *We Can't Stay This Way: Changing the Standard for Staying Injunctions Pending Appeal After* eBay, 79 GEO. WASH. L. REV. 1276, 1281 (2011).

3. *See* eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 395 (2006) (Roberts, C.J., concurring) ("From at least the early 19th century, courts have granted injunctive relief upon a finding of infringement in the vast majority of patent cases.").

4. eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006).

5. *See* Christopher B. Seaman, *Permanent Injunctions in Patent Litigation After* eBay*: An Empirical Study*, 101 IOWA L. REV. 1949, 1983 fig.1, 1988 fig.3 (2016) (finding that injunctions were granted 72.5% of the time after *eBay*, but only 16% of the time for PAEs); *infra* notes 92–93 and accompanying text (describing the patent troll label). This Article uses the acronym "PAE" to refer to a patentee's business model based primarily on the licensing and/or litigation of patents rather than the development and manufacturing of products. *See* Seaman, *supra*, at 1952 n.8 and accompanying text.

6. Seaman, *supra* note 5, at 1953; *see also* Colleen V. Chien & Mark A. Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1, 11 (2012) (finding that of all patentees, "PAEs are least likely to obtain an injunction; they tend to succeed in their requests only when the defendant fails to object"); Karen E. Sandrik, *Reframing Patent Remedies*, 67 U. MIAMI L. REV. 95, 111 (2012) (noting that non-practicing patentees "are hard pressed to get an injunction" after *eBay*).

7. *eBay Inc.*, 547 U.S. at 394; *see also* John M. Golden, *"Patent Trolls" and Patent Remedies*, 85 TEX. L. REV. 2111, 2113–14 (2007) (asserting that "district courts' post-*eBay* practice" of denying injunctive relief to PAEs "may be in some tension with the Supreme Court's warning against the categorical denial of injunctive relief to broad classes of patent holders" (internal quotations omitted)).

8. *See generally* Chien & Lemley, *supra* note 6 (analyzing 192 district court decisions post-*eBay*); Benjamin H. Diessel, Note, *Trolling for Trolls: The Pitfalls of the Emerging Market Competition Requirement for Permanent Injunctions in Patent Cases Post*-eBay, 106 MICH. L. REV.

Circuit—which decides nearly all appeals in patent cases—has been less critically examined.[9] Indeed, the Federal Circuit itself often appears to be split regarding the appropriate circumstances for granting an injunction. Some panel opinions stress that patents confer strong "property rights" that are consistent with "granting injunctive relief . . . in the vast majority of patent cases,"[10] while other members of the court caution that there is a "clear Supreme Court standard" against a "general rule that a successful [patentee] is entitled to an injunction."[11] For instance, in a recent decision in the long-running, billion-dollar patent litigation between technology titans Apple and Samsung, a divided Federal Circuit panel sharply split over application of *eBay*'s four-factor test to Apple's patents covering several minor features incorporated in various smartphones and tablet computers, writing three different opinions on the issue.[12] To date, however, no published

305 (2007) (studying 25 district court decisions post-*eBay*); Douglas Ellis et al., *The Economic Implications (and Uncertainties) of Obtaining Permanent Injunctive Relief After* eBay v. MercExchange, 17 FED. CIR. B.J. 437 (2008) (evaluating 36 district court decisions post-*eBay*); Ernest Grumbles III et al., *The Three Year Anniversary of* eBay v. MercExchange*: A Statistical Analysis of Permanent Injunctions*, INTELL. PROP. TODAY, Nov. 2009, at 25 (assessing 67 district court decisions post-*eBay*); George M. Newcombe et al., *Prospective Relief for Patent Infringement in a Post-*eBay *World*, 4 N.Y.U. J.L. & BUS. 549, 559–60 (2008) (evaluating 38 district court decisions post-*eBay*); Benjamin Peterson, Note, *Injunctive Relief in the Post-*eBay *World*, 23 BERKELEY TECH. L.J. 193 (2008) (analyzing 33 district court decisions post-*eBay*); Seaman, *supra* note 5 (empirically studying 218 district court decisions post-*eBay*); Stacy Streur, *The* eBay *Effect: Tougher Standards but Courts Return to the Prior Practice of Granting Injunctions for Patent Infringement*, 8 NW. J. TECH. & INTELL. PROP. 67 (2009) (reviewing 68 district court decisions post-*eBay*).

9. Ryan T. Holte, *The Misinterpretation of* eBay v. MercExchange *and Why: An Analysis of the Case History, Precedent, and Parties*, 18 CHAP. L. REV. 677, 717 (2015) (stating that "additional comprehensive research into post-*eBay* injunction appeals at the Federal Circuit is needed"); *see also* Rochelle Cooper Dreyfuss, *The Federal Circuit: A Continuing Experiment in Specialization*, 54 CASE W. RES. L. REV. 769, 772 (2004) ("Unfortunately, it is difficult to test the concerns that have been voiced about the [Federal Circuit] empirically, and few have tried.").

10. Broadcom Corp. v. Emulex Corp., 732 F.3d 1325, 1338 (Fed. Cir. 2013) (internal quotations omitted); *see also id.* (affirming the district court's decision to grant a permanent injunction because "the analysis by the district court proceeds under the long tradition of equity practice granting injunctive relief upon a finding of infringement in the vast majority of patent cases" and because "patent property rights are especially difficult to protect with solely monetary relief because a calculating infringer may thus decide to risk a delayed payment to obtain use of valuable property without the owner's permission" (internal quotations omitted)).

11. Edwards Lifesciences AG v. CoreValve, Inc., 699 F.3d 1305, 1317 (Fed. Cir. 2012) (Prost, J., concurring).

12. *Compare* Apple Inc. v. Samsung Elecs. Co., 809 F.3d 633, 639–47 (Fed. Cir. 2015) (finding that all four *eBay* factors weighed in favor of granting Apple a permanent injunction), *and id.* at 648–56 (Reyna, J., concurring) (agreeing that *eBay* warranted an injunction for Apple and further reasoning that "infringement on the [patentee's] right to exclude is an injury for which an injunction

scholarship has attempted a comprehensive empirical study of Federal Circuit decisions regarding permanent injunctions since *eBay*.

To fill this important gap in the literature, we conducted an original study into Federal Circuit decisions in patent cases that reached a merits decision regarding a permanent injunction at the trial court level for a 7½-year period following *eBay*.[13] For this project, we coded appeals from nearly 200 patent cases involving contested permanent injunction decisions—representing all district court rulings on this issue during the study's time period—for numerous criteria, including the duration and outcome of the appeal, panel composition, and the Federal Circuit's reasoning for affirming or overturning the lower court's injunction decision.[14]

The original dataset created for this study helps shed considerable light on the Federal Circuit's decision-making regarding permanent injunctions in patent cases. Most notably, it finds a sharp and statistically significant split in affirmance rates depending on whether the district court granted or denied injunctive relief to the prevailing patentee.[15] Specifically, the Federal Circuit affirmed the district court when it granted a permanent injunction nearly ninety percent of the time, but it affirmed only slightly over half the time when the district court denied an injunction.[16] Furthermore, this finding was robust after controlling for other variables, such as whether the patentee was a non-practicing entity, whether the patentee and infringer were competitors, and the field of technology of the infringed patents.[17] Additional descriptive results also reveal interesting patterns regarding the filing and pendency of Federal Circuit appeals,[18] as well as the voting patterns of individual Federal Circuit judges regarding injunctive relief and citations to the two concurring opinions in *eBay*.[19]

The balance of this Article is organized as follows. Part I first provides an overview of the *eBay* litigation, including the 2006 Supreme

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can be granted"), *with id.* at 656–63 (Prost, C.J., dissenting) (arguing that "[t]his is not a close case" and contending that Apple failed to demonstrate irreparable harm).

13. *See infra* section II.B (describing the study design); Seaman, *supra* note 5, at 1975–76 (describing methods used to identify all patent cases involving a merits decision on permanent injunctions at the trial court level from May 2006 through December 2013).

14. *See infra* notes 146–169 and accompanying text (describing variables coded).

15. *See infra* section III.A.5.

16. *See infra* section III.A.5 Figure 6.

17. *See infra* section III.A.7.

18. *See infra* sections III.A.1 & III.A.3.

19. *See infra* sections III.A.6 & III.A.8.

Court decision. It then summarizes the theoretical distinction between property rules and liability rules for enforcing patent rights and details the results of previous empirical studies concerning district courts' application of *eBay*. Next, it reviews the Federal Circuit's central role in harmonizing and shaping patent law. Part II describes the research questions considered in this empirical study and the methodology used to address them. Part III discusses the study's findings and their implications, as well as individual case details for the few Federal Circuit cases where injunctions were denied by the district court and affirmed on appeal, or injunctions were granted by the district court but overturned by the Federal Circuit.

I. BACKGROUND

To assist in evaluating the Federal Circuit's role in patent injunctions post-*eBay*, this section first discusses the history of *eBay v. MercExchange*, including the parties, procedural history, and Supreme Court decision. It then discusses the impact of *eBay* on district courts, most notably the shift by district courts away from a property rule approach for non-practicing patent owners. Finally, it reviews the Federal Circuit's role in harmonizing patent law as well as past scholarship suggesting that the Federal Circuit may be more pro-patentee than district courts in its application of patent law.

A. The eBay *Decision and Its Impact*

1. The Parties and Lower Court Decisions

The *eBay* saga begins with the mid-1990's founding of MercExchange by former CIA engineer Tom Woolston.[20] MercExchange's business was initially directed towards collectible sales via e-commerce, with the focus of its plans centered on Woolston's 1995 patent application for trusted computer-based sales between parties unaffiliated with one another.[21] MercExchange's dispute with eBay started in 2000, when MercExchange began experiencing financial

20. Ryan T. Holte, *Trolls or Great Inventors: Case Studies of Patent Assertion Entities*, 59 ST. LOUIS U. L.J. 1, 24 (2013) (citing Transcript of Record at 308–15, MercExchange, L.L.C. v. eBay, Inc., 275 F. Supp. 2d 695 (E.D. Va. 2003) (No. 2:01-CV-736)). Woolston's company was first named Fleanet, then it was changed to MercExchange during the time that the first patent application was pending. *Id.* After founding Fleanet, Woolston received a law degree from the George Washington University School of Law. *Id.*

21. U.S. Patent No. 5,845,265 (filed Nov. 7, 1995) (issued Dec. 1, 1998); Holte, *supra* note 20, at 26–27.

problems and eBay—prior to any alleged infringement—expressed interest in purchasing MercExchange's patent portfolio.[22]

After a few months of unsuccessful negotiation, MercExchange believed that eBay was "looking for ways to kill the patents instead of buying them."[23] The negotiations ended, and—according to MercExchange—eBay then began infringing the Woolston patents.[24] MercExchange then sued eBay for patent infringement in September 2001 in the United States District Court for the Eastern District of Virginia, where MercExchange was based.[25]

After a five-week trial in 2003, a jury found Woolston's original '265 patent (and one other patent in the same family as the '265 patent) not invalid and infringed, and it awarded MercExchange $35 million in damages.[26] MercExchange subsequently moved for entry of a permanent injunction, which the district court denied.[27] While recognizing "the grant of injunctive relief against the infringer is considered the norm," the district court stated that it was required to consider "traditional equitable principles," including "(i) whether the plaintiff would face irreparable injury if the injunction did not issue, (ii) whether the plaintiff has an adequate remedy at law, (iii) whether granting the injunction is in the public interest, and (iv) whether the balance of the hardships tips in the plaintiff's favor."[28]

After evaluating these factors, the district court found none of them weighed in favor of granting an injunction, placing particular emphasis on evidence of MercExchange's "willingness to license its patents, its lack of commercial activity in practicing the patents, and its comments to the media as to its intent with respect to enforcement of its patent rights."[29] The district court ultimately concluded that eBay successfully rebutted the presumption that MercExchange would suffer irreparable harm absent an injunction.[30]

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22. Holte, *supra* note 20, at 29.

23. Julia Wilkinson, *The eBay Patent Wars: Interview with MercExchange CEO Thomas Woolston* (Sept. 30, 2004), https://web.archive.org/web/20160305045459/http://www.ecommercebytes. com/cab/abn/y04/m09 /i30/s01 [https://perma.cc/Y3VC-GYUJ].

24. *Id.*

25. Complaint for Patent Infringement, MercExchange, L.L.C. v. eBay Inc., 275 F. Supp. 2d 695 (E.D. Va. 2003) (No. 2:01-CV-736).

26. MercExchange, 275 F. Supp. 2d at 698–99.

27. *Id.* at 710–15.

28. *Id.* at 711.

29. *Id.* at 712.

30. *Id.*

Both MercExchange and eBay appealed to the Federal Circuit on various grounds. The Federal Circuit issued a seventeen-page opinion in March 2005, addressing the injunction issue in just over one page.[31] Reversing the denial of a permanent injunction, the Federal Circuit did not cite the four-factor equitable test applied by the district court. Instead, the court began its analysis by declaring "the general rule is that a permanent injunction will issue once infringement and validity have been adjudged."[32] It went on to state "a court may decline to enter an injunction" only in unusual circumstances, such as "when 'a patentee's failure to practice the patented invention frustrates an important public need for the invention,' such as . . . to protect public health."[33]

The court then found that the district court erred in a number of areas. First, regarding the district court's concern over the issuance of business-method patents, the Federal Circuit stated "[a] general concern regarding business-method patents [ ] is not the type of important public need that justifies the unusual step of denying injunctive relief."[34] Second, regarding MercExchange's public statements describing its willingness to license the patents at issue, the Federal Circuit stated "[i]njunctions are not reserved for patentees who intend to practice their patents . . . [i]f the injunction gives [MercExchange] additional leverage in licensing, that is a natural consequence of the right to exclude . . . "[35] Finally, the Federal Circuit concluded its discussion of the injunction issue by holding that "[w]e therefore see no reason to depart from the general rule that courts will issue permanent injunctions against patent infringement absent exceptional circumstances."[36]

2. The Supreme Court's Decision and Concurring Opinions

eBay filed its petition for writ of certiorari with the Supreme Court on July 25, 2005,[37] MercExchange filed an opposition,[38] and on November

31. MercExchange, L.L.C. v. eBay, Inc., 401 F.3d 1323, 1338–39 (Fed. Cir. 2005).

32. *Id.* at 1338 (citing Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1246–47 (Fed. Cir. 1989)).

33. *Id.* (quoting Rite–Hite Corp. v. Kelley, Inc., 56 F.3d 1538, 1547 (Fed. Cir. 1995) (en banc)).

34. *Id.* at 1339.

35. *Id.*

36. *Id.*

37. Petition for a Writ of Certiorari, eBay Inc. v. MercExchange, 547 U.S. 388 (2006) (No. 05-130), 2005 WL 1801263.

38. Brief in Opposition to Petition for Writ of Certiorari, eBay Inc. v. MercExchange, 547 U.S. 388 (2006) (No. 05-130), 2005 WL 2396812.

28, 2005, the Supreme Court granted certiorari on two questions.[39] The first question was whether the Federal Circuit erred in employing a general rule of issuing a permanent injunction after a finding of infringement.[40] The second question was whether the Supreme Court should "reconsider its precedents, including *Continental Paper Bag Co. v. Eastern Bag Company*,"[41] a 1908 case containing language requiring a near-automatic injunction rule.[42]

On May 15, 2006, the Court unanimously reversed the Federal Circuit.[43] Justice Thomas delivered the opinion for the Court. Chief Justice Roberts filed a concurring opinion (joined by Justices Scalia and Ginsburg),[44] as did Justice Kennedy (joined by Justices Stevens, Souter and Breyer).[45] The Court's opinion is succinct—less than five full pages in the official *United States Reports*—and holds that a federal court considering whether to award permanent injunctive relief to a prevailing plaintiff in a dispute arising under the Patent Act must apply "the four-factor test historically employed by courts of equity."[46] The Supreme

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39. eBay Inc. v. MercExchange, L.L.C., 546 U.S. 1029 (2005) (granting writ of certiorari). The Supreme Court did not invite the Solicitor General's office "to file an amicus brief setting forth the government's views as to whether the Court should grant certiorari in" the case. "Such invitations, which Supreme Court practitioners refer to as 'Calls for Views of the Solicitor General' or 'CVSG' orders, have been an accepted part of Supreme Court practice for about a half century." John F. Duffy, *The Federal Circuit in the Shadow of the Solicitor General*, 78 GEO. WASH. L. REV. 518, 525 (2010).

40. *eBay Inc.*, 546 U.S. 1029.

41. Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U.S. 405 (1908).

42. *Id.*at 429 ("From the character of the right of the patentee we may judge of his remedies. It hardly needs to be pointed out that the right can only retain its attribute of exclusiveness by a prevention of its violation. Anything but prevention takes away the privilege which the law confers upon the patentee."). The Court in *Continental Paper Bag* explained that the "no machine for practical manufacturing purposes was ever constructed under the" patent-in-suit, and that the patentee "locked up its patent" by "never attempt[ing] to make any practical use of it, either itself or through licenses." *Id.* at 427–28. In addition, it stated that "[w]e have no doubt that the complainant stands in the common class of manufacturers who accumulate patents merely for the purpose of protecting their general industries and shutting out competitors." *Id.* at 428.

43. eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 390 (2006).

44. *Id.* at 394–95 (Roberts, C.J., concurring).

45. *Id.* at 395–97 (Kennedy, J., concurring).

46. *Id.* at 390. Despite the Court's language, some remedies scholars have argued that this "historical" or "traditional" four-factor test for a permanent injunction was in fact neither historical nor traditional. *See* DOUGLAS C. LAYCOCK, MODERN AMERICAN REMEDIES: CASES AND MATERIALS 426 (4th ed. 2010) (arguing that there was "no traditional four-part test" and that the Supreme Court majority's citations supporting this test are misplaced in cases related to preliminary injunctions); Doug Rendleman, *The Trial Judge's Equitable Discretion Following* eBay v. MercExchange, 27 REV. LITIG. 63, 76 n.71 (2007) ("Remedies specialists had never heard of the four-point test."). *But see* Rachel Janutis, *The Supreme Court's Unremarkable Decision in* eBay Inc. v. MercExchange, L.L.C., 14 LEWIS & CLARK L. REV. 597, 597 (2010) (contending that "*eBay* is

Court acknowledged that patents confer "'the right to exclude others from making, using, offering for sale, or selling the invention,'"[47] but the Federal Circuit failed to recite and apply "traditional equitable principles" in deciding whether an injunction was warranted:

> The [Federal Circuit] articulated a "general rule," unique to patent disputes, "that a permanent injunction will issue once infringement and validity have been adjudged." . . . Because we conclude that neither [the Federal Circuit nor the district court] correctly applied the traditional four-factor framework that governs the award of injunctive relief, we vacate the judgment of the Court of Appeals . . . .[48]

The unanimous opinion contained two notable points regarding how courts should address these principles concerning to non-commercializing patentees like MercExchange.[49] First, regarding the district court's rejection of an injunction based in part on MercExchange's "'lack of commercial activity in practicing the patent,'"[50] the Court stated:

> [T]raditional equitable principles do not permit such broad classifications. For example, some patent holders, such as university researchers or self-made inventors, might reasonably prefer to license their patents, rather than undertake efforts to secure the financing necessary to bring their works to market themselves. Such patent holders may be able to satisfy the traditional four-factor test, and we see no basis for categorically denying them the opportunity to do so.[51]

On this point, the Court concluded that the district court's "analysis cannot be squared with the principles of equity adopted by Congress."[52] Second, the Court relied on its 1908 decision in *Continental Paper Bag*, which held that courts can grant injunctive relief in favor of patent holders who "unreasonably decline[] to use [their] patent," in holding

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not a remarkable break from equitable practice. Indeed, the principles outlined by the Court in its decision are neither novel [n]or surprising when viewed in light of previous precedents.").

47. *eBay Inc.*, 394 U.S. at 392 (quoting 35 U.S.C. § 154(a)(1) (2006)).

48. *Id.* at 393–94 (citations omitted).

49. Holte, *supra* note 9, at 700.

50. *eBay Inc.*, 547 U.S. at 393.

51. *Id.*

52. *Id.*

that the district court erred in categorically rejecting injunctive relief for non-practicing patentees.[53]

Chief Justice Roberts' concurring opinion was only two paragraphs in length and focused on the historical precedent of injunctions in patent cases. After noting that the Court's majority holding rested upon traditional notions of equity, the Chief Justice went into a discussion of that tradition vis-à-vis patent cases: since the early nineteenth century, "courts have granted injunctive relief upon a finding of infringement in the vast majority of patent cases."[54] In the Chief Justice's opinion, this traditional practice was not surprising "given the difficulty of protecting a right to *exclude* through monetary remedies that allow an infringer to *use* an invention against the patentee's wishes."[55] Chief Justice Roberts concluded the concurrence by citing Justice Holmes: "a page of history is worth a volume of logic" regarding the long history of injunctive relief in patent cases.[56]

Justice Kennedy's three-paragraph concurring opinion[57] first supported the Court's opinion regarding the "well-established, four-factor test . . . in deciding whether to grant injunctive relief in patent cases."[58] Second, Justice Kennedy agreed with Chief Justice Roberts regarding the "lesson of the historical practice" in determining injunctive

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53. *Id.* at 393–94. One author has previously argued the Court affirmed the *Continental Paper Bag* case in *eBay*. *See* Holte, *supra* note 9, at 701 (noting that in regards to a non-practicing patent holder, the *Continental* opinion states: "Standing alone, nonuse is no efficient reason for withholding injunction. There are many reasons for non-use which, upon explanation, are cogent . . . . Anything but prevention takes away the privilege which the law confers upon the patentee."). Other commentators have argued that *eBay*'s generalities about equities stand in significant tension with the argument and holding from *Continental*. *See, e.g.*, Eric R. Claeys, *The Conceptual Relation Between IP Rights and Infringement Remedies*, 22 GEO. MASON L. REV. 825, 833 (2015).

54. *eBay Inc.*, 547 U.S. at 395 (Roberts, C.J., concurring).

55. *Id.* (emphasis in original).

56. *Id.* (quoting N.Y. Trust Co. v. Eisner, 256 U.S. 345, 349 (1921)); *see also* Jay Dratler, Jr., eBay*'s Practical Effect: Two Differing Visions*, 2 AKRON INTELL. PROP. J. 35, 43 (2008) ("The thrust of [Roberts'] concurrence was that the results of permanent-injunction hearings in patent cases need not change drastically as a result of the Court's unanimous insistence on a four-factor equitable analysis.").

57. *eBay Inc.*, 547 U.S. at 396 (Kennedy, J., concurring). Justice Kennedy characterized the concurrence as mere "observations" and only cited to a single authority to support his views—a 2003 FTC report summarizing a panel discussion concerning "The Rise of Non-Practicing Entities" in the computer hardware industry. *Id.* (citing FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY 38–39 (2003), https://www.ftc.gov/sites/default/files/documents/reports/promote-innovation-proper-balance-competition-and-patent-law-and-policy/innovationrpt.pdf [https://perma.cc/TY6M-MK7H]).

58. *eBay Inc.*, 547 U.S. at 395 (Kennedy, J. concurring).

relief.[59] However, Kennedy's concurrence then sharply departed from Roberts'; specifically, Justice Kennedy contended that "[b]oth the terms of the Patent Act and the traditional view of injunctive relief accept that the existence of a right to exclude does not dictate the remedy for a violation of that right."[60] The opinion then asserted that modern patent cases often differed from historical patent litigation in several important ways, including the role of non-practicing patentees who employ injunctive relief "as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent."[61] Justice Kennedy's concurrence also explained that injunctions may be inappropriate "[w]hen the patented invention is but a small component of the product the companies seek to produce and the threat of an injunction is employed simply for undue leverage in negotiations."[62] Finally, it pointed to the "burgeoning number of patents over business methods," some of which allegedly suffered from "potential vagueness and suspect validity," as another reason to potentially deny injunctive relief.[63]

3. eBay *After Remand and Its Legacy*

While the landmark Supreme Court decision in *eBay* is fundamental to the post-2006 changes in patent injunction jurisprudence, the aftermath and conclusion of the *eBay* litigation itself also appears to have played a significant role in the decision's impact. Upon remand from the Supreme Court, and applying the four-factor test mandated by the Court's decision, the district court again denied injunctive relief to MercExchange.[64] In a detailed written decision issued on July 27, 2007, the district court again found that three of the four *eBay* equitable factors weighed against granting MercExchange an injunction.[65] The district court's decision after remand was the final injunction decision in the

59. *Id.* at 396.

60. *Id.*

61. *Id.*

62. *Id* at 397.

63. *Id.*; *see also* Holte, *supra* note 9, at 703 (arguing that "given that the Kennedy concurrence was self-described as 'observations,' the FTC report citation was simply a summary of testimony related to an off subject discussion (computer hardware)," and that "[t]he briefing and oral argument before the Court deeply considered injunctions for specific classes of patents, and the unanimous Opinion of the Court explicitly affirmed *Continental*—the concurrence can truly only be considered a general 'observation' by a minority of the Court, with no precedential value or citation intended").

64. MercExchange L.L.C. v. eBay, Inc., 500 F. Supp. 2d 556, 559 (E.D. Va. 2007).

65. *Id.* at 569–91.

case and has been widely cited by district courts when applying *eBay* to prevailing patentees in their courts.[66]

A detailed analysis of the district court's reasoning on remand is beyond this Article's scope;[67] however, an important point regarding the court's decision to again deny an injunction was its discussion critiquing Chief Justice Roberts' concurrence[68] and its multiple references to Justice Kennedy's concurrence.[69] Among other things, the district court cited Justice Kennedy for the proposition that "[u]tilization of a ruling in equity as a bargaining chip suggests both that such party never deserved a ruling in equity and that money is all that such party truly seeks, rendering monetary damages an adequate remedy in the first instance" and that MercExchange's "post-trial attempt to sell off its intellectual property rights . . . . lessens the impact of [its] plea for equitable relief."[70]

Other district courts considering permanent injunctions in patent infringement cases have regularly cited the district court's post-remand opinion in *eBay* and applied similar reasoning.[71] In a previous article,

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66. *See* Holte, *supra* note 9, at 730 (noting that "Judge Friedman's second denial of the injunction" after remand and MercExchange's subsequent settlement left it as "the final opinion in the case"). The district court's opinion denying a permanent injunction after remand in *eBay* has been cited in over 60 sixty subsequent district court decisions as of July 2016, most of which involved permanent injunction requests. *MercExchange*, 500 F. Supp. 2d at 556.

67. For further analysis of the district court's 2007 decision, see Holte, *supra* note 9, at 706–14, and Seaman, *supra* note 5, at 1967–68.

68. For instance, responding to the statement in Roberts' concurrence that "a page of history is worth a volume of logic" regarding permanent injunctions, the district court countered that "[t]he factual history of this matter indicates that MercExchange has never sought to defend its right to exclude," suggesting that it was "merely seeking an injunction as a bargaining chip to increase the bottom line." *MercExchange*, 500 F. Supp. 2d at 588.

69. *Id.* at 574, 582, 586 (citing Kennedy's concurring opinion four times); *see also* Holte, *supra* note 9, at 711 ("Judge Friedman's take on Justice Kennedy's concurrence was far more agreeable [than Roberts' concurrence], if not precedential."); Rendleman, *supra* note 46, at 83 n.108 ("On remand, . . . the trial judge rejected MercExchange's renewed motion for a permanent injunction in a detailed and factual patent-specific opinion influenced by Justice Kennedy's injunction-skeptical concurring opinion.").

70. *MercExchange*, 500 F. Supp. 2d at 582 (citing eBay, Inc. v. MercExchange L.L.C., 547 U.S. 388, 396 (2006) (Kennedy, J., concurring)); *see also* Robert Reis, *Rights and Remedies Post* eBay v. MercExchange—*Deep Waters Stirred*, 2 AKRON INTELL. PROP. J. 133, 150–52 (2008) (summarizing the district court's decision after remand regarding the first two *eBay* factors and citations to Justice Kennedy's concurrence).

71. *See, e.g.*, Open Text, S.A. v. Box, Inc., 36 F. Supp. 3d 885, 906 (N.D. Cal. 2014) ("Although the 'quantum of evidence' required to prove irreparable harm is unclear, case law is clear that the potential for loss of market share is insufficient." (citing *MercExchange*, 500 F. Supp. 2d at 577)); ePlus Inc. v. Lawson Software, Inc., 946 F. Supp. 2d 459, 467 (E.D. Va. 2013) (noting the overlap between the adequate remedy at law and irreparable harm factors in *eBay* (citing *MercExchange*, 500 F. Supp. 2d at 582)), *vacated by* 789 F.3d 1349 (Fed. Cir. 2015); Smith & Nephew, Inc. v.

Ryan Holte argued that district courts' reliance on Justice Kennedy's concurrence as precedent resulted in a misinterpretation of *eBay*'s holding.[72] This issue was compounded by the February 2008 settlement of the case before the Federal Circuit had opportunity to weigh in on the

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Interlace Medical, Inc., 955 F. Supp. 2d 69, 78 (D. Mass. 2013) (explaining that the PTO's preliminary rejection of the patents during reexamination weakens the plaintiff's ability to show irreparable harm (citing *MercExchange*, 500 F. Supp. 2d at 575 n.15)); Layne Christensen Co. v. Bro-Tech Corp., 871 F. Supp. 2d 1104, 1117 (D. Kan. 2012) (noting that "irreparable harm had not been shown in part because the patentee had consistently licensed the patent instead of engaging in commercial activity in practicing the patent." (citing *MercExchange*, 500 F. Supp. 2d at 570–71)); ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc., 827 F. Supp. 2d 641, 648 (E.D. Va. 2011) (analogizing the patentee-in-suit to MercExchange, who both engaged in "'a consistent course of litigating or threatening litigation to obtain money damages'" and "'utilized its patents as a sword to extract money rather than as a shield to protect . . . its market-share, reputation, goodwill, or name recognition'" (quoting *MercExchange*, 500 F. Supp. 2d at 572)), *denial of injunction rev'd,* 694 F.3d 1312 (Fed. Cir. 2012); Belden Techs., Inc. v. Superior Essex Commc'ns LP, 802 F. Supp. 2d 555, 578 (D. Del. 2011) (differentiating between entities who use third-party licensing to bring concepts to market and those who "'strategically utilize[e] a patent to excise a tax from companies already participating in the market'" (quoting *MercExchange*, 500 F. Supp. 2d at 583 n.24)); Metso Minerals, Inc. v. Powerscreen Intern. Distribution Ltd., 788 F. Supp. 2d 71, 74 (E.D.N.Y. 2011) (noting that "on remand from [the] Supreme Court, [the district court] declin[ed] to grant injunctive relief where it appeared that the patent holder was 'merely seeking an injunction as a bargaining chip to increase the bottom line.'" (quoting *MercExchange*, 500 F. Supp. 2d at 588)); ePlus, Inc. v. Lawson Software, Inc., No. 3:09-CV-620, 2011 WL 2119410, at *6 (E.D. Va. May 23, 2011) (explaining that the patentee must carry the burden of "demonstrat[ing] how and why its harm is irreparable" (citing *MercExchange*, 500 F. Supp. 2d at 577)); Enpat, Inc. v. Budnic, No. 6:11-CV-86, 2011 WL 1196420, at *3 (M.D. Fl. Mar. 29, 2011) ("However, 'the [c]ourt is not blind to the reality that the nature of the right protected by a patent, the right to exclude, will frequently result in a plaintiff successfully establishing irreparable harm in the wake of establishing validity and infringement.'" (quoting *MercExchange*, 500 F. Supp. 2d at 568)); Arlington Indus., Inc. v. Bridgeport Fittings, Inc., No. 3:01-CV-0485, 2010 WL 817519, at *5 (M.D. Pa. Mar. 9, 2010) (stating that the public interest factor in *eBay* "typically 'favors the patentee, given the public's interest in maintaining the integrity of the patent system'" (quoting *MercExchange*, 500 F. Supp. 2d at 586)); Joyal Prods., Inc. v. Johnson Elec. N. Am., Inc., No. 04-5172, 2009 WL 512156, at *11 (D.N.J. Feb. 27, 2009) (distinguishing the patentee-in-suit from entities like MercExchange "who widely licensed their patents" (citing *MercExchange*, 500 F. Supp. 2d at 569)); Trading Techs. Int'l, Inc. v. eSpeed, Inc., No. 04 C 5312, 2008 WL 4531371, at *2 (N.D. Ill. May 22, 2008) ("The *eBay* district court, along with numerous other courts, has since decided that no presumption can exist under relevant case law and the language of the Supreme Court's decision." (citing *MercExchange*, 500 F. Supp. 2d at 568)); *see also* Holte, *supra* note 9, at 722–23 ("Simply looking at citations to Judge Friedman's 2007 denial of MercExchange's renewed motion for injunction reveals at least thirteen citations within cases considering permanent injunctions for unrelated patent infringement cases.").

72. *See* Holte, *supra* note 9, at 721 ("In reviewing post-*eBay* injunction cases, many other scholars have concluded 'a review of post-*eBay* federal district court decisions shows that though it is not the opinion of the Court, [Justice] Kennedy's concurrence has proven to be highly persuasive.'" (quoting Golden, *supra* note 6, at 2113 ("District courts have responded in apparent lockstep to Justice Kennedy's concerns about trolls.")); LAYCOCK, *supra* note 46, at 427 ("The only hint of what should have been the real issue in *eBay* comes in the penultimate paragraph of Justice Kennedy's concurring opinion.").

district court's second injunction denial, thus leaving the post-remand decision as the final public word on this issue.[73]

Another point of interest is the voluminous media coverage regarding the *eBay* case,[74] which was overwhelmingly anti-"patent troll."[75] According to an empirical study by Lisa Dolak and Blaine Bettinger, press coverage of *eBay* coincided with the injunction appeal in the *NTP v. Research in Motion*[76] case from the same district,[77] which threatened to shut down Blackberry's then-popular messaging service.[78] Although it is not possible to determine whether any members of the Court were aware of or influenced by media coverage of the *eBay* or *NTP* cases, as Dolak and Bettinger note, "that coverage . . . contained significant discussion of particular considerations that were potentially relevant to the resolution of the question at issue in *eBay*, and ultimately expressly regarded as relevant by four of the Justices" in Kennedy's concurrence.[79]

B. Property Rules, Liability Rules, and District Courts' Application of eBay

Previous studies of *eBay*'s impact in the district courts suggest that it has created a bifurcated regime of patent remedies, where some patentees are generally awarded a property-rule remedy (via an injunction against future infringement), while others are limited to a

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73. *See* Holte, *supra* note 9, at 730 ("Should MercExchange not have settled before the Federal Circuit had opportunity to reverse [the district court] a second time, perhaps the *eBay* Supreme Court opinion might be interpreted differently . . . as opposed to an anti-patentee district court judge having the final word.").

74. *See* Lisa A. Dolak & Blaine T. Bettinger, eBay *and the BlackBerry®: A Media Coverage Case Study*, 2 AKRON INTELL. PROP. J. 1, 12 (2008) (explaining that among patent-law related articles in their dataset, "*eBay* received more coverage than any of the other Supreme Court cases pending or decided during the [two-and-a-half year] study period").

75. *See* Holte, *supra* note 9, at 703–06 (discussing press coverage of the *eBay* litigation). *Cf.* Edward Lee, *Patent Trolls: Moral Panics, Motions of Limine, and Patent Reform*, 19 STAN. TECH. L. REV. 113, 127–33 (2015) (conducting an empirical study of mass media's coverage of non-practicing patentees and finding that "the term 'patent troll' is, by far, the most frequently used term by the media" post-*eBay*). For further detail regarding the "patent troll" label, *see infra* notes 92–93 and accompanying text. This Article uses the acronym PAE (patent assertion entity) in lieu of patent troll. *See* Seaman, *supra* note 5, at 1952 & n.9.

76. NTP, Inc. v. Research in Motion, Ltd., No. 3:01-CV-767, 2003 WL 23100881 (E.D. Va. Aug. 5, 2003).

77. Dolak & Bettinger, *supra* note 74, at 13, 20–26.

78. *NTP, Inc.*, 2003 WL 23100881 (granting permanent injunction to NTP but staying the injunction pending appeal), *aff'd in part, rev'd in part, vacated in part and remanded*, 418 F.3d 1282 (Fed. Cir. 2005).

79. Dolak & Bettinger, *supra* note 74, at 31.

liability rule (usually monetary compensation, such as an ongoing royalty).

The distinction between property rules and liability rules for enforcing legal rights (also called entitlements) traces back to Guido Calabresi and A. Douglas Melamed's groundbreaking article, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*.[80] Under a property rule, an entitlement can only be taken or transferred with the owner's consent, which the owner is free to withhold.[81] In contrast, a liability rule exists when another party may violate an entitlement if it is "willing to pay an objectively determined value for it."[82] Thus, unlike a property rule, "a liability rule denies the holder of the [entitlement] the power to exclude others."[83] Injunctive relief is the primary means for enforcing a property rule, while monetary compensation is normally granted for breaching a liability rule.[84]

Historically, prevailing patentees have been entitled to the property-rule remedy of injunctive relief.[85] As Chief Justice Roberts noted in a

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80. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of The Cathedral*, 85 HARV. L. REV. 1089, 1090 (1972).

81. *See id.* at 1105 (explaining that under a "property rule," "[n]o one can take the entitlement . . . unless the holder sells it willingly and at the price at which [the holder] subjectively values the property"); Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2655 (1994) ("A property rule is a legal entitlement that can only be infringed after bargaining with the entitlement holder.").

82. Calabresi & Melamed, *supra* note 80, at 1092.

83. Richard A. Epstein, *A Clear View of The Cathedral: The Dominance of Property Rules*, 106 YALE L.J. 2091, 2091 (1997).

84. *See* Saul Levmore, *Unifying Remedies: Property Rules, Liability Rules, and Startling Rules*, 106 YALE L.J. 2149, 2150–51 (1997) (identifying injunctions with property rules and damages with liability rules); Merges, *supra* note 81, at 2655 (explaining that "injunctions [are] the classic instance of a property rule," while "[u]nder a liability rule . . . a tribunal will determine the appropriate compensation in an *ex post* proceeding"). As Calabresi and Melamed themselves note, however, the categories of property rules and liability rules "are not . . . absolutely distinct." Calabresi & Melamed, *supra* note 80, at 1092. For instance, if monetary remedies are sufficiently high, they can operate like a property rule because potential takers of an entitlement would be deterred from doing so due to the high cost. *See* Ian Ayres & Eric Talley, *Solomonic Bargaining: Dividing a Legal Entitlement to Facilitate Coasean Trade*, 104 YALE L.J. 1027, 1040–41 (1995) (explaining that with "relatively high damages, potential takers would be deterred from nonconsensual takings, and the entitlement would be transferred only by consensual agreement"); Douglas Laycock, *The Neglected Defense of Undue Hardship (and the Doctrinal Train Wreck in* Boomer v. Atlantic Cement*)*, 4 J. TORT L. 1, 1 (2012) (explaining that "supracompensatory remedies . . . can function as liability rules rather than property rules").

85. *See* Kenneth W. Dam, *The Economic Underpinnings of Patent Law*, 23 J. LEGAL STUD. 247, 255 (1994) ("Remedies for infringement of a patent are, with limited exceptions, those appropriate for property. Injunctions . . . are available against infringers on proof of validity and infringement."); Merges, *supra* note 81, at 2662 (noting the "strong property rule baseline of intellectual property law").

concurring opinion in *eBay*, "[f]rom at least the early 19th century, courts have granted injunctive relief upon a finding of infringement in the vast majority of patent cases."[86] Prior to *eBay*, the Federal Circuit continued this practice, treating patents as conferring a strong property right to exclude.[87]

Recently, however, some scholars and judges have argued in favor of imposing liability rules for patent infringement, at least in certain situations.[88] These circumstances may include when transaction costs would prevent the parties from reaching a mutually beneficial agreement,[89] or when a patent owner uses the prospect of injunctive relief to extract compensation significantly in excess of the patent's economic value, a situation referred to as "holdup."[90]

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86. eBay, Inc. v. MercExchange, L.L.C., 547 U.S. 388, 395 (2006) (Roberts, C.J., concurring).

87. *See, e.g.*, *In re* Etter, 756 F.2d 852, 859 (Fed. Cir. 1985) ("The patent right is a right to exclude . . . . The essence of all property is the right to exclude, and the patent property right is certainly not inconsequential."); Carl Schenck, A.G. v. Nortron Corp., 713 F.2d 782, 786 n.3 (Fed. Cir. 1983) ("The patent right is but the right to exclude others, the very definition of 'property.'").

88. *See, e.g.*, Paice LLC v. Toyota Motor Corp., 504 F.3d 1293, 1314 (Fed. Cir. 2007) ("Under some circumstances, awarding an ongoing royalty for patent infringement in lieu of an injunction may be appropriate."); z4 Techs., Inc. v. Microsoft Corp., 434 F. Supp. 2d 437, 441 (E.D. Tex. 2006) ("[A] violation of the right to exclude does not inevitably lead to the conclusion that a patent holder cannot be adequately compensated by remedies at law such as monetary damages . . . ."), *aff'd on other grounds*, 507 F.3d 1340 (Fed. Cir. 2007); Daniel A. Crane, *Intellectual Liability*, 88 TEX. L. REV. 253, 256 (2009) (contending that "liability treatment for intellectual rights may be preferable" in cases where the right to exclude is less important); Timothy R. Holbrook, *Equivalency and Patent Law's Possession Paradox*, 23 HARV. J.L. & TECH. 1 (2009) (proposing adoption of a liability rule for infringement under the doctrine of equivalents); Mark A. Lemley & Philip J. Weiser, *Should Property or Liability Rules Govern Information?*, 85 TEX. L. REV. 783, 784 (2007) (arguing that liability rules are preferable when injunctive relief cannot be narrowly tailored); *see also eBay Inc.*, 547 U.S. at 396–97 (Kennedy, J., concurring) (suggesting that "legal damages may well be sufficient to compensate for the infringement and an injunction may not serve the public interest" when "the patented invention is but a small component of the product" and when "the threat of an injunction is employed simply for undue leverage in negotiations").

89. *See* Ian Ayres & J.M. Balkin, *Legal Entitlements as Auctions: Property Rules, Liability Rules, and Beyond*, 106 YALE L.J. 703, 706 n.9 (1996) ("[L]egal scholars have interpreted Calabresi and Melamed to be saying that property rules are more efficient when transaction costs are low."); Merges, *supra* note 81, at 2655 ("Ever since Calabresi and Melamed, transaction costs have dominated the choice of the proper entitlement rule, with a liability rule being the entitlement of choice when transaction costs are high.").

90. *See* FED. TRADE COMM'N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION 26 (2011) ("An injunction's ability to cause patent hold-up can support withholding injunctive relief in some situations. A manufacturer's high switching costs combined with the threat of an injunction can allow a patent owner to obtain payments unrelated to the economic value of its invention."); Mark A. Lemley & Carl Shapiro, *Patent Hold-Up and Royalty Stacking*, 85 TEX. L. REV. 1991, 1993 (2007) ("[T]he threat of an injunction can enable a patent holder to negotiate royalties far in excess of the patent holder's true economic contribution."). Other legal and economics scholars have questioned whether holdup is a significant problem. *See, e.g.*, Einer Elhauge, *Do Patent Holdup and Royalty Stacking Lead to Systematically*

Several prior empirical studies have sought to evaluate *eBay*'s impact by reviewing district court decisions on permanent injunctions in patent cases. Although these studies evaluated different time periods, they generally agree that patent owners who prevail in litigation receive an injunction (a property rule) about three-quarters of the time post-*eBay*.[91] However, certain categories of patentees are much less successful at obtaining injunctive relief, most notably "patent assertion entities" (PAEs), which are firms that principally exploit their patents through litigation and/or licensing rather than direct commercialization.[92] These previous studies show that PAEs—sometimes pejoratively called "patent trolls"[93]—generally receive only monetary compensation (a liability rule) instead of an injunction against future infringement.[94]

Excessive Royalties?, 4 J. COMPETITION L. & ECON. 535 (2008); J. Gregory Sidak, *Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley & Shapiro*, 92 MINN. L. REV. 714 (2008); *see also* Alexander Galetovic, Stephen Haber & Ross Levine, *An Empirical Examination of Patent Holdup*, 11 J. COMPETITION L. & ECON. 549, 552–54, 570–72 (2015) (finding no empirical evidence to support the claim of holdup for standard-essential patents).

91. *See* Chien & Lemley, *supra* note 6, at 9–10 & n.46 (reporting that "district courts . . . have granted about 75% of requests for injunctions" from July 2006 to August 2011); Ellis et al., *supra* note 8, at 441–42 n.35–36 (2008) (finding permanent injunctions awarded in 75% of district court decisions from May 2006 through January 2008); Grumbles et al., *supra* note 8, at 25 (reporting that permanent injunctions were awarded 72% of the time from May 2006 through May 2009); Petersen, *supra* note 8, at 197–98 (reporting that permanent injunctions were granted in 24 of 33 (73%) district court decisions from May 2006 through February 2008); Kirti Gupta & Jay P. Kesan, Studying the Impact of *eBay* on Injunctive Relief in Patent Cases 7 tbl.2 (July 10, 2015) (unpublished manuscript) (reporting that district courts granted 308 of 384 motions (80%) for permanent injunctions from May 2006 through end of 2012); Docket Navigator, *Success Rates for Permanent Injunctions After* eBay v. MercExchange, DOCKET REP. (3:33 PM, Nov. 20, 2009), http://docketreport.blogspot.com/2009/11/success-rates-for-permanent-injunction.html [https://perma.cc/2F5E-AG85] (noting that 72% of motions seeking permanent injunction in patent cases from January 2008 through May 2009 were granted in whole or in part).

92. FED. TRADE COMM'N, *supra* note 90, at 220 n.21 ("This report uses the term 'patent assertion entity' [or PAE] . . . to refer to firms whose business model focuses on purchasing and asserting patents."); Colleen V. Chien, *From Arms Race to Marketplace: The Complex Patent Ecosystem and Its Implications for the Patent System*, 62 HASTINGS L.J. 297, 328 (2010) (explaining that PAEs "are focused on the enforcement, rather than the active development or commercialization of their patents").

93. *See, e.g.*, *In re* Packard, 751 F.3d 1307, 1325 (Fed. Cir. 2014) (Plager, J., concurring) ("Patent trolls are also known by a variety of other names: 'patent assertion entities' (PAEs), [and] 'non-practicing entities' (NPEs)."); Finjan, Inc. v. Blue Coat Sys., Inc., No. 13-CV-03999-BLF, 2015 WL 4129193, at *2 (N.D. Cal. June 8, 2015) (granting motion in limine prohibiting "derogatory" references about the patentee's business, including terms "patent troll" and "patent assertion entity"); *see also* Halo Elecs., Inc. v. Pulse Elecs., Inc., __ U.S. __, 136 S. Ct. 1923, 1935 (2016) (Breyer, J., concurring) ("Trolls, in the patois of the patent community, are entities that hold patents for the primary purpose of enforcing them against alleged infringers, often exacting outsized licensing fees on threat of litigation."); *cf.* Commil USA, LLC v. Cisco Sys., Inc., __ U.S. __, 135 S.

To further investigate *eBay*'s impact, co-author Christopher Seaman conducted an empirical study of district court injunction decisions for a 7½-year period following the Supreme Court's decision (May 2006–December 2013).[95] This study confirmed that while most patentees still obtain injunctive relief, PAEs rarely do.[96] This finding was statistically significant, even after controlling for other potential confounding factors like the field of technology of the infringed patent and the district court that decided the injunction request.[97] As a result, this study concluded that "district courts appear to have adopted a de facto rule against injunctive relief for PAEs and other patent owners who do not directly compete . . . against an infringer"[98]—a rule which, ironically, is in tension with the Court's conclusion in *eBay* that "the District Court erred in its categorical denial of injunctive relief" to a non-practicing patentee.[99]

Although these prior studies shed significant light on district courts' application of *eBay*, they necessarily paint an incomplete picture because they are limited to only trial court decisions.[100] The Federal Circuit, as the sole appellate court for claims arising under the Patent Act,[101] plays a

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Ct. 1920, 1932 (2015) (Scalia, J., dissenting) (contending that the Court's decision "increases the *in terrorem* power of patent trolls").

94. Chien & Lemley, *supra* note 6, at 10 (finding that district courts granted injunctions to PAEs only 26% of the time, and only 7% of the time where the injunction request was contested by the infringer); *see also* FED. TRADE COMM'N, *supra* note 90, at 256 (finding that "non-practicing patentees have been less likely than practicing patentees to receive injunctions").

95. *See* Seaman, *supra* note 5, at 1975.

96. *Id.* at 1982–83 & fig.1, 1987–88 & fig.3 (finding injunctions were granted in 72.5% of district court decisions after *eBay*, but only 16% of the time for PAEs).

97. *Id.* at 1996–98 & tbl.3 (finding that patentee's status as PAE was statistically significant at the 5% level in the most predictive model, and noting that even this model "probably tend[s] to underestimate the strength of the relationship between PAE status and injunctive relief" due to collinearity with a similar variable).

98. *Id.* at 1953.

99. eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 394 (2006); *see also* Mark P. Gergen, John M. Golden & Henry E. Smith, *The Supreme Court's Accidental Revolution? The Test for Permanent Injunctions*, 112 COLUM. L. REV. 203, 244–45 (2012) (noting that although "[t]he Supreme Court's *eBay* opinion specifically indicated that courts should not adopt a 'categorical rule' denying injunctions for nonpracticing entities . . . . commentators have reported that district courts' actual practice appears substantially to conform to the forbidden rule"); Golden, *supra* note 7, at 2113–14 (asserting that "district courts' post-*eBay* practice" of denying injunctive relief to PAEs "may be in some tension with the Supreme Court's warning against the 'categorical denial of injunctive relief' to broad classes of patent holders").

100. *See* Seaman, *supra* note 5, at 1982 (noting that "this study is limited to district court decisions; as a result, it does not consider the outcome of any appeal to the U.S. Court of Appeals for the Federal Circuit or the reasoning by that court for its decision").

101. 35 U.S.C. § 1295(a)(1) (2012).

central role in the shaping and application of patent law.[102] It also serves as the final arbiter in most patent cases, as the Supreme Court only grants certiorari to, at best, a handful of patent cases each year.[103] Thus, to fully appreciate how *eBay* has impacted the traditional property rule of injunctive relief for prevailing patentees, the Federal Circuit must be considered as well. Moreover, the Federal Circuit's interpretation and application of *eBay* is highly relevant to the ongoing scholarly conversation regarding the Supreme Court's increasing involvement in the field of patent law, which some have asserted is a response to the Federal Circuit's alleged favoring of strong patent rights.[104]

C. The Role and Function of the Federal Circuit

The Federal Circuit's role as the sole court of appeals in patent cases and its function of overseeing the various general-jurisdiction trial courts around the country are important reasons to study its jurisprudence regarding injunctive relief. Indeed, during oral arguments at the United States Supreme Court in *eBay*, Justice Ginsburg questioned eBay's counsel, Carter G. Phillips, stating: "One of the problems with the district court exercising equitable discretion without a close review by the Federal Circuit is just the thing that the Federal Circuit was created

102. *See, e.g.*, Paul R. Gugliuzza, *The Federal Circuit as a Federal Court*, 54 WM. & MARY L. REV. 1791, 1795 (2013) (explaining that "the U.S. Court of Appeals for the Federal Circuit[] has an enormous influence on patent law and innovation policy" due in part to its "near-exclusive jurisdiction over patent appeals"); *see also infra* section I.C (discussing the origins of the Federal Circuit and its intended role in harmonizing patent law).

103. *See* John F. Duffy, *The* Festo *Decision and the Return of the Supreme Court to the Bar of Patents*, 2002 SUP. CT. REV. 273, 275–76 (noting that the Supreme Court "averaged barely one patent decision per year" between 1950 and 1980, and that "[t]he Federal Circuit was created in part because of the Supreme Court's then decades-long neglect of the field" of patent law). Since 2000, however, the Supreme Court has become considerably more active in patent disputes, issuing over thirty merits decisions. *Supreme Court Patent Cases*, WRITTEN DESCRIPTION BLOG, http://writtendescription.blogspot.com/p/patents-scotus.html [https://perma.cc/RWB7-KBHK].

104. *See* Peter Lee, *The Supreme Assimilation of Patent Law*, 114 MICH. L. REV. 1413, 1416 (2016) (noting that many observers view the Supreme Court's "significant[] increase[]" in "review of patent decisions from the Court of Appeals for the Federal Circuit . . . . as attempts by the Supreme Court to rein in expansive Federal Circuit doctrine that has made it too easy to obtain patents and unduly enhanced their power"). *But see* Timothy R. Holbrook, *Explaining the Supreme Court's Interest in Patent Law*, 3 IP THEORY 62, 76 (2013) ("One colorable explanation for the Supreme Court's activity [in patent law] is that the Court has acted to combat the Federal Circuit's pro-patent bias. That view of the Supreme court, however, is incomplete and ultimately unpersuasive.").

to handle . . . the Federal Circuit is put there . . . so that you don't have wide disparities."[105]

Prior to the Federal Circuit, there was "widespread perception that the legal infrastructure of patent law was not being effectively managed."[106] The influential Hruska Commission Report on the federal appellate system singled out patent law "as an area in which the application of the law to the facts of a case often produces different outcomes in different courtrooms in substantially similar cases."[107] Regional courts of appeal had developed reputations as "pro-patent . . . and anti-patent,"[108] resulting in widespread forum shopping by litigants in patent disputes.[109] The Hruska Commission report concluded that the situation "demean[ed] the entire judicial process and the patent system as well."[110]

The 1982 Federal Courts Improvement Act created the Federal Circuit to, among other things, "insure[] a more uniform interpretation of the patent laws and thus contribut[e] meaningfully and positively to predicting the strength of patents."[111] The adoption of a single tribunal

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105. Transcript of Oral Argument at 11–12, eBay, Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006) (No. 05-130). A similar call for specialized courts came 100 years earlier from Judge Learned Hand:

> The court summons technical judges to whom technical questions are submitted and who can intelligently pass upon the issues without blindly groping among testimony upon matters wholly out of their ken. How long we shall continue to blunder along without the aid of unpartisan and authoritative scientific assistance in the administration of justice, no one knows; but all fair persons not conventionalized by provincial legal habits of mind ought, I should think, unite to effect some such advance.

Parke-Davis & Co. v. H.K. Mulford Co., 189 F. 95, 115 (S.D.N.Y. 1911).

106. R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105, 1115 (2004).

107. S. REP. NO. 97-295, at 5 (1981), *reprinted in* 1982 U.S.C.C.A.N. 11, 15 (citing SEN. ROMAN L. HRUSKA ET AL., COMMISSION ON REVISION OF THE FEDERAL COURT APPELLATE SYSTEM, STRUCTURE AND INTERNAL PROCEDURES: RECOMMENDATIONS FOR CHANGE, 67 F.R.D. 195 (1975) [hereinafter HRUSKA COMMISSION REPORT]); *see also* Larry D. Thompson, Jr., *Adrift On A Sea Of Uncertainty: Preserving Uniformity in Patent Law Post*-Vornado *Through Deference to the Federal Circuit*, 92 GEO. L.J. 523, 531 n.35 (2004) ("The Hruska Commission's findings 'that patent cases are inconsistently adjudicated' were confirmed by the 'great weight' of testimony that Congress heard in the 96th and 97th Congresses, including from 'distinguished jurists, patent practitioners, and representatives of major technologically-oriented business enterprises,' testimony that 'also supported the basic objective of providing for uniformity of doctrinal development in the patent area.'" (quoting S. REP. NO. 97-275, at 5, *reprinted in* 1982 U.S.C.C.A.N. at 15)).

108. H.R. REP. NO. 97–312, at 20–21 (1982).

109. *See* HRUSKA COMMISSION REPORT, *supra* note 107, at 220 (explaining that "the perceived disparity in results in different circuits" in patent cases "leads to widespread forum shopping").

110. *Id.* (internal quotations omitted).

111. *Hearings on H.R. 6033, H.R. 6934, H.R. 3806 and H.R. 2414, Before the Subcomm. on Courts, Civil Liberties & the Admin. of Justice of the House Comm. on the Judiciary*, 96th Cong. 797 (1980), http://njlaw.rutgers.edu/collections/gdoc/hearings/8/81602054/81602054_5.pdf [https://perma.cc/PGA5-JUVL]; *see also* H.R. REP. NO. 97-312, at 20 (1982) (asserting that the Federal

for patent appeals was intended to yield a "more predictable patent law doctrine, reduce or eliminate forum shopping, and at least rationalize—if not strengthen—the patent grant."[112] As Tim Holbrook has explained, "[w]ith each decision, the Federal Circuit creates law at the national level, a role previously reserved for the Supreme Court."[113] Accordingly, since its commissioning, the Federal Circuit has served as "the manager and developer of [] patent law."[114] In addition, some scholars have argued that the Federal Circuit was established as "a 'court with a mission'" to not only adjudicate cases, but also "serve as a maker of substantive patent policy" in the process.[115] The Federal Circuit's unique role in shaping patent law has even led some members of the Supreme Court to express concern "that th[is] specialized court may develop an institutional bias" favoring patent owners.[116]

Rochelle Cooper Dreyfuss has followed the Federal Circuit's growth and impact in a series of articles,[117] and concluded that "observers largely agree that . . . the Federal Circuit has vastly improved the patent system."[118] In her view, the court has made patent law more "accurate, precise, and coherent."[119] As a result, patents are likely more valuable

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Circuit "will provide nationwide uniformity in patent law" and "make the rules applied in patent litigation more predictable"). *Cf.* Lee, *supra* note 104, at 1438 (discussing how the Supreme Court's recent patent decisions may actually be working to curb "patent exceptionalism" by the Federal Circuit and specifically noting that the *eBay* "opinion exhibits a systematizing tone that repudiates any form of patent exceptionalism."). In a strange twist of intent, however, the Supreme Court's attempts at generalizing patent law in *eBay* with a traditional test inadvertently created a unique rule that was "developed for patent law [but] has become the standard for determining injunctions in a wide range of doctrinal areas as opposed to vice versa." *Id.* at 1439.

112. Wagner & Petherbridge, *supra* note 106, at 1115–16; *see also* Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 7 (1989) ("According to proponents of the [Federal Courts Improvement Act], channeling patent cases into a single appellate forum would create a stable, uniform law and would eliminate forum shopping.").

113. Holbrook, *supra* note 104, at 62.

114. Wagner & Petherbridge, *supra* note 106, at 1116.

115. John R. Thomas, *Formalism at the Federal Circuit*, 52 AM. U. L. REV. 771, 793–94 (2003) (quoting Control Res., Inc. v. Delta Elec., Inc., 133 F. Supp. 2d 121, 123 (D. Mass. 2001)).

116. Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc., 535 U.S. 825, 838–39 (2002) (Stevens, J., concurring); *see also* Lab. Corp. of Am. v. Metabolite Labs, Inc., 548 U.S. 124 (2006) (Breyer, J., dissenting from denial of certiorari) (explaining that "this generalist Court could contribute to the important ongoing debate . . . as to whether the patent system, as currently administered and enforced, adequately reflects the careful balance that the federal patent laws embody" (internal quotations and modifications omitted)).

117. Rochelle Cooper Dreyfuss, *In Search of Institutional Identity: The Federal Circuit Comes of Age*, 23 BERKELEY TECH. L.J. 787 (2008); Dreyfuss, *supra* note 9; Dreyfuss, *supra* note 112.

118. Dreyfuss, *supra* note 9, at 800.

119. Dreyfuss, *supra* note 112, at 24.

today than before 1982.[120] While some commentators have asserted that the centralization of patent law has led to "capture" by pro-patent interests,[121] "others argue that the apparent[] pro-patent shift has been accompanied by a more restrictive approach to patent breadth."[122]

In addition to this theoretical literature, numerous empirical studies have examined the Federal Circuit's role in shaping patent law since 1982.[123] Although this empirical research is too extensive to summarize

120. *See* DONALD S. CHISUM ET AL., PRINCIPLES OF PATENT LAW 25 (2d ed. 2001) ("The [Federal Circuit] ushered in a new approach to patent validity and defenses to infringement, resulting in a significant strengthening of the patent grant['s value]. . . ."); Wagner & Petherbridge, *supra* note 106, at 1116 & n.37 ("It is widely perceived that patents are more valuable today than before 1982. . . ."); *cf.* Michael J. Meurer, *Controlling Opportunistic and Anti-Competitive Intellectual Property Litigation*, 44 B.C. L. REV. 509, 519 (2003) ("[I]ntellectual property has become more valuable, and the number of patents, copyrights, and trademarks has increased rapidly.").

121. *See, e.g.*, JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 69 (2008) (citing various empirical studies regarding the "pro-patent[ee] policies of the Federal Circuit"); ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT 104, 110 (2004) (contending that the Federal Circuit has "significantly broadened patent-holders' rights" and that it has "systematically altered [patent law] in favor of the patent holders"); WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 335 (2003) ("The Federal Circuit has indeed turned out to be a pro-patent court . . . ."); Stuart Minor Benjamin & Arti K. Rai, *Fixing Innovation Policy: A Structural Perspective*, 77 GEO. WASH. L. REV. 1, 17 (2008) (concluding that the Federal Circuit's behavior in challenges to patent validity is "arguably consistent with standard accounts of capture of regulatory processes by well-represented interest groups"); Robert P. Merges, *Commercial Success and Patent Standards: Economic Perspectives on Innovation*, 76 CALIF. L. REV. 803, 822 (1988) ("Even with [the] safeguards [Congress imposed when it created the Federal Circuit], the Federal Circuit appears to be a 'pro-patent' court."); *see also* John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 251 (1998) (concluding that findings of patent validity have been significantly higher since the establishment of the Federal Circuit).

122. David R. Pekarek Krohn & Emerson H. Tiller, *Federal Circuit Patent Precedent: An Empirical Study of Institutional Authority and Intellectual Property Ideology*, 2012 WIS. L. REV. 1177, 1183 (2012); *see also* John M. Golden, *The Supreme Court as "Prime Percolator": A Prescription for Appellate Review of Questions in Patent Law*, 56 UCLA L. REV. 657, 679 (2008) (asserting that the Federal Circuit's "apparently pro-patent shift appears to have been accompanied by an effort to take a more restrictive approach to patent breadth. Under the Federal Circuit, patents may be more likely to be issued and upheld, but they may also be more likely to have a relatively narrow scope."); Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1112 (2003) ("[T]he [Federal Circuit] has clearly not accepted the most assertive version of patents-as-ordinary-property claim, which counsels in favor of broad grants.").

123. For empirical scholarship regarding outcomes at the Federal Circuit generally, *see, e.g.*, Donald R. Dunner, *Introduction to the United States Court of Appeals for the Federal Circuit—The First Three Years*, 13 AIPLA Q.J. 185 (1985); Donald R. Dunner, J. Michael Jakes & Jeffrey D. Karceski, *A Statistical Look at the Federal Circuit's Patent Decisions: 1982–1994*, 5 FED. CIR. B.J. 151 (1995); Ted L. Field, *"Judicial Hyperactivity" in the Federal Circuit: An Empirical Study*, 46 U.S.F. L. REV. 721 (2012); Matthew D. Henry & John L. Turner, *The Court of Appeals for the*

here, several studies are worth mentioning regarding the Federal Circuit's impact in strengthening patent rights and harmonizing patent law.

First, an empirical study by Matthew Henry and John Turner used a data set of patent litigation from 1953–2002 to compare appellate decisions before and after the creation of the Federal Circuit.[124] The results of this study support the perception of "the 'pro-patent' nature" of that court, at least with respect to decisions regarding patent validity.[125] Specifically, Henryand Turner found that the Federal Circuit "has been significantly more reluctant than its predecessors to affirm [district court] decisions of [patent] invalidity."[126] Further, "district courts have ruled patents invalid significantly less often" after the Federal Circuit's creation.[127]

Federal Circuit's Impact on Patent Litigation, 35 J. LEGAL. STUD. 85 (2006); Kimberly A. Moore, *Judges, Juries and Patent Cases—An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365 (2000). For empirical scholarship regarding invalidity and unenforceability decisions by the Federal Circuit, see, for example, John R. Allison & Mark A. Lemley, *How Federal Circuit Judges Vote in Patent Validity Cases*, 27 FLA. ST. U. L. REV. 745 (2000); Christopher A. Cotropia, *Nonobviousness and the Federal Circuit: An Empirical Analysis of Recent Case Law*, 82 NOTRE DAME L. REV. 911 (2007); Jennifer Nock & Sreekar Gadde, *Raising the Bar for Nonobviousness: An Empirical Study of Federal Circuit Case Law Following* KSR, 20 FED. CIR. B.J. 369 (2011); Lee Petherbridge, Jason Rantanen & Ali Mojibi, *The Federal Circuit and Inequitable Conduct: An Empirical Assessment*, 84 S. CAL. L. REV. 1293 (2011); Lee Petherbridge & R. Polk Wagner, *The Federal Circuit and Patentability: An Empirical Assessment of the Law of Obviousness*, 85 TEX. L. REV. 2051 (2007); Jason Rantanen, *The Federal Circuit's New Obviousness Jurisprudence: An Empirical Study*, 16 STAN. TECH. L. REV. 709 (2013). For empirical scholarship regarding claim construction decisions by the Federal Circuit, see, for example, J. Jonas Anderson & Peter S. Menell, *Informal Deference: A Historical, Empirical, and Normative Analysis of Patent Claim Construction*, 108 NW. U. L. REV. 1 (2013); Christian A. Chu, *Empirical Analysis of the Federal Circuit's Claim Construction Trends*, 16 BERKELEY TECH. L.J. 1075 (2001); David. L. Schwartz, *Practice Makes Perfect? An Empirical Study of Claim Construction Reversal Rates in Patent Cases*, 107 MICH. L. REV. 223 (2008); David L. Schwartz, *Pre*-Markman *Reversal Rates*, 43 LOY. L.A. L. REV. 1073 (2010); Wagner & Petherbridge, *supra* note 106.

124. Henry & Turner, *supra* note 123, at 95. Henry & Turner identified 3,268 appeals decisions from cases reported in the *United States Patent Quarterly*. *Id.* at 99–100. Of these appeals, 1,927 were issued by the regional circuit court of appeals, while 1,341 were issued by the Federal Circuit. *Id.* at 100–01 & tbl.1.

125. *Id.* at 85. However, Henry & Turner also found that the Federal Circuit's creation did not result in a statistically significant change regarding the affirmance of non-infringement decisions. *Id.* at 85, 112.

126. *Id.* at 85; *see also id.* at 112 ("The [Federal Circuit] has affirmed decisions of invalidity significantly less often, [and] patentees have appealed decisions of invalidity significantly more often . . . . "). *Cf.* Scott E. Atkinson, Alan C. Marco & John L. Turner, *The Economics of a Centralized Judiciary: Uniformity, Forum Shopping, and the Federal Circuit*, 52 J.L. & ECON. 411, 421 (2009) (finding the variance of the regional circuits' validity rates in patent cases was six times as large prior to the creation of the Federal Circuit).

127. Henry & Turner, *supra* note 123, at 112.

Second, David Pekarek Krohn and Emerson Tiller compared citations by district courts to appellate precedent in a random sample of copyright and patent cases over an eight-year period.[128] They found that "district courts treat the Federal Circuit as more authoritative (compared to the Supreme Court) on patent law than they treat the regional circuits (compared to the Supreme Court) on copyright law."[129] In addition, they found that "Federal Circuit[] precedent tends to be relied on more in pro-patent opinions than in anti-patent opinions."[130] From these findings, Pekarek Krohn & Tiller conclude that "the Federal Circuit is succeeding in its purpose of providing a set of patent law that is more authoritative than is achieved by the regional circuits in similar areas."[131]

II. METHODOLOGY

This Part first describes the research questions sought to be addressed through this empirical study of Federal Circuit appeals from district court decisions on permanent injunctions following *eBay*. It then explains the study design and collection process for the data and findings reported in this Article. Finally, it describes some limitations of the data collected.

A. Research Questions and Hypotheses

As previously mentioned, the objective of this study is to evaluate how the Federal Circuit applies *eBay*'s four-factor test in reviewing district court decisions regarding permanent injunctions in patent cases. In particular, it seeks to evaluate whether the Federal Circuit, as a specialized court with expertise in patent law, is more likely to favor prevailing patentees in awarding injunctive relief than generalized district courts.

The primary hypothesis of this paper is that the Federal Circuit is more pro-injunction than the district courts in applying *eBay*. In other words, at the outset of this study, we expected that the Federal Circuit would affirm district court decisions that granted a permanent injunction to the patentee at a significantly higher rate than it affirmed district court decisions that denied an injunction. The basis for this hypothesis is that,

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128. Krohn & Tiller, *supra* note 122, at 1186–88 (randomly sampling 109 copyright opinions and 141 patent opinions from 2000–2007).

129. *Id.* at 1179.

130. *Id.*

131. *Id.* at 1212.

as a specialized court intended to strengthen patent rights,[132] the Federal Circuit is more likely to favor injunctions in lieu of monetary compensation than the generalist trial courts because an injunction provides greater protection for the patent owner against future infringement.[133]

Several secondary hypotheses were also formulated. First, we predicted that the majority of cases where the district court reached a decision on the merits of an injunction would be appealed to the Federal Circuit. This is because the cost of appeal in a patent case (consisting primarily of attorney's fees) is substantially lower than the cost of litigating the case to judgment in the trial court.[134] Second, we anticipated that there would be substantial variation among Federal Circuit judges regarding the application of injunctive relief after *eBay* based on concurring and dissenting opinions by individual judges in high-profile cases like *Apple v. Motorola*[135] and *Apple v. Samsung*.[136] Third, we expected that opinions by Federal Circuit judges affirming injunctive relief would cite to Chief Justice Roberts' concurring opinion in *eBay*, which suggested that the "long tradition of equity practice" and "difficulty of protecting a right to exclude through monetary remedies" would warrant injunctive relief in most patent cases.[137] In contrast, we expected that Federal Circuit opinions denying an injunction would cite to Justice Kennedy's opinion, which offered several reasons why injunctive relief may not be warranted.[138]

In addition, we sought to study several other aspects of appeals in patent cases that reached a merits decision on injunctive relief for which we did not have a clear hypothesis. For instance, we intended to evaluate whether appeal rates differed based on whether the trial court granted or denied a permanent injunction, as well as whether the case involved a PAE litigant. We also wanted to study the pendency of appellate decisions by the Federal Circuit, as well as whether a stay of injunctive

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132. *See supra* section I.C.

133. *See* Jaideep Venkatesan, *Compulsory Licensing of Nonpracticing Patentees After* eBay v. MercExchange, 14 VA. J.L. & TECH. 26, 35 (2009) (explaining that the "inclination to automatically grant injunctions" prior to *eBay* "was in part motivated by an aversion to compulsory licensing, which was perceived to favor infringers over patentees").

134. *See infra* note 193 and accompanying text.

135. Apple Inc. v. Motorola, Inc., 757 F.3d 1286 (Fed. Cir. 2014).

136. Apple Inc. v. Samsung Elecs. Co., Ltd., 809 F.3d 633, 662–63 (Fed. Cir. 2015).

137. eBay Inc. v. MercExchange L.L.C., 547 U.S. 388, 395 (2006) (Roberts, C.J., concurring) (emphasis omitted); *see also supra* notes 54–56 and accompanying text.

138. *eBay Inc.*, 547 U.S. at 396–97 (Kennedy, J., concurring); *see also supra* notes 57–63 and accompanying text.

relief was granted by either the district court or Federal Circuit. Finally, we were interested in other potential patterns regarding injunctive relief at the Federal Circuit.

B. Study Design and Data Collection

An original dataset was created for this study.[139] The starting point was the dataset of post-*eBay* district court cases involving contested permanent injunctions decisions previously created by co-author Christopher Seaman.[140] Using a variety of sources,[141] Seaman's study identified 218 district court decisions on permanent injunctions in patent cases from May 2006 through December 2013.[142] These decisions were then hand-coded for a variety of criteria, including the identity of the parties, the district court that decided the injunction request, whether the injunction was granted or denied, and other basic case information.[143] In addition, other information potentially relevant to the injunction decision, such as the type of patentee, the technological field of the asserted patent(s), and findings by the district court for each *eBay* factor were coded as well.[144] All of this information was imported into the dataset created for this study.

The current study hand-coded several categories of information regarding appeals for all patent cases included in Seaman's district court dataset.[145] The first category of variables coded involved the filing and pendency of any appeal to the Federal Circuit following the district court's decision regarding the merits of a permanent injunction.[146] This included whether a Notice of Appeal was filed by either party,[147] the

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139. The data collected for this study will be made publicly available upon the paper's publication. *See* Robin Feldman, Mark A. Lemley, Jonathan S. Masur & Arti K. Rai, *Open Letter on Ethical Norms in Intellectual Property Scholarship*, 29 HARV. J.L. & TECH. 339, 348 (2016) (recommending that "data needed to replicate the results in a published empirical paper should be made accessible to other academics at the time the paper is published").

140. *See generally* Seaman, *supra* note 5.

141. *Id.* at 1975–76 & nn.171–76 (explaining the search methodology used to identify cases for the district court dataset).

142. *See id.* app. A at 2006–18 (listing the decisions included in the district court dataset).

143. *Id.* at 1977 & nn.180–83.

144. *Id.* at 1977–78 & nn.184–92.

145. In addition, one recently-identified case that was not captured in the district court dataset, but met the criteria for inclusion, was added for this study. *See* Edwards Lifesciences AG v. CoreValve, Inc., No. 08-CV-00091, 2011 WL 446203 (D. Del. Feb. 7, 2011), *aff'd on liability but denial of permanent injunction vacated and remanded*, 699 F.3d 1305, 1314–16 (Fed. Cir. 2012).

146. Variable names are listed in brackets in the following footnotes.

147. This was coded as a binary variable: [appeal].

docket number assigned to the appeal at the Federal Circuit,[148] the start and end dates of the appeal,[149] the total time the appeal was pending before the Federal Circuit,[150] and whether a cross-appeal was filed by the other party.[151]

The second category of variables coded related to the Federal Circuit's disposition of the appeal (if one was filed). This included whether the Federal Circuit issued a decision regarding the appeal,[152] whether the decision was a summary affirmance pursuant to Federal Circuit Rule 36,[153] whether the decision involved a three-judge panel or was decided en banc,[154] and citation information for the decision.[155] The identity of the Federal Circuit judges who participated in each decision was coded as well.[156] Finally, if an injunction was granted by the district court, the district court and Federal Circuit dockets were studied to ascertain whether either court granted a stay (temporary delay) of the injunction.[157]

Next, each decision by the Federal Circuit was studied to ascertain whether it involved a merits decision regarding the district court's decision to grant or deny a permanent injunction.[158] Not all merits decisions by the Federal Circuit reached the permanent injunction issue;

148. This was coded as a string variable: [cafcdocket]. If more than one party filed an appeal—a not uncommon situation—then only the lead docket number was coded.

149. The start date of the appeal [appealstart] was coded based on the entry of the Notice of Appeal in the district court docket. The end date of the appeal [appealend] was based on either (1) the date the Federal Circuit issued its mandate or (2) the date the Federal Circuit's mandate was entered in the district court's docket (the latter was preferred when available).

150. This was coded by calculating the difference in days between the start date of the appeal and the end date of the appeal and storing the result as a new variable: [appealdays].

151. This was coded as a binary variable: [crossappeal].

152. This was coded as a binary variable: [cafcop_opinion].

153. *See* Fed. Cir. R. 36 (2016) (permitting the court to "enter a judgment of affirmance without opinion" in certain circumstances). This was coded as a binary variable: [cafcop_rule36].

154. These were coded separately as binary variables: [panel_op] and [enbanc].

155. This was coded as a string variable: [appealcite].

156. The membership of each panel decision was coded in three variables, listed in the order that appears in the published decision or order: [judge1], [judge2], and [judge3]. All of the cases that reached a decision on the merits of injunctive relief were decided in three-judge panels; none were decided en banc.

157. This information was coded as two separate binary variables, one for the district court's decision on whether to grant a stay [dc_stay] and another for the Federal Circuit's decision on whether to grant a stay [cafc_stay]. These were later combined into another variable that captured whether a stay was entered by either court [stay_all].

158. This was coded as a binary variable: [merits_inj].

indeed, most did not.[159] This occurred, for example, when the Federal Circuit overturned the trial court or jury on an issued related to liability, such as claim construction, infringement, and/or an invalidity defense. In such cases, the Federal Circuit typically vacated the entry of an injunction if one had been granted without considering whether it should have been granted under *eBay*.[160] Thus, a Federal Circuit decision was coded as involving a merits decision regarding a permanent injunction if either: (1) the Federal Circuit's written opinion discussed and reached a substantive decision regarding the merits of the district court's decision to grant or deny a permanent injunction under *eBay*; or (2) the district court had reached a merits decision regarding a permanent injunction under *eBay*, and the Federal Circuit issued a summary affirmance of the district court pursuant to Federal Circuit Rule 36. Using these criteria, a total of forty-two merits decisions by the Federal Circuit were identified in the dataset.[161]

Finally, a number of additional variables were coded if the Federal Circuit issued a decision regarding the merits of the district court's permanent injunction decision. These included whether the district court's decision regarding the award of a permanent injunction was affirmed or not,[162] whether the Federal Circuit's decision cited to either Chief Justice Roberts' or Justice Kennedy's concurring opinions in *eBay*,[163] whether the Federal Circuit's decision discussed patents as

159. *See infra* section III.A.4 (noting that only 27% of decisions by the Federal Circuit reached the merits of the district court's injunction decision).

160. *See, e.g.*, Lincoln Nat'l Life Ins. Co. v. Transamerica Life Ins. Co., 609 F.3d 1364, 1371 (Fed. Cir. 2010) (reversing the jury's verdict of infringement and vacating the permanent injunction without discussing *eBay*); 800 Adept, Inc. v. Murex Securities, Ltd., 539 F.3d 1354 (Fed. Cir. 2008) (same); Lexion Med., LLC v. Northgate Techs., Inc., 292 Fed. App'x 42 (Fed. Cir. 2008) (vacating and remanding judgment of infringement based on incorrect claim construction and vacating permanent injunction). One exception to this general practice occurred in Fresenius USA, Inc. v. Baxter International, Inc., 582 F.3d 1288 (Fed. Cir. 2009), where the Federal Circuit concluded that "the district court performed the appropriate analysis required by *eBay*" and "the district court did not abuse its discretion when it granted permanent injunctive relief," but ultimately vacated the injunction and remanded to the trial court "to revise or reconsider the injunction" in light of its reversal of the district court's grant of judgment as matter of law on two patents-in-suit. *Id.* at 1302–03.

161. *See infra* section III.A.4.

162. This was coded as a binary variable: [affirm]. Any merits decision regarding a permanent injunction that was anything other than an affirmance—including a reversal, a vacatur, or vacate-and-remand—was coded as not affirmed. We also coded the disposition for each Federal Circuit decision regarding injunctive relief using the more detailed categories described in LEE EPSTEIN & ANDREW D. MARTIN, AN INTRODUCTION TO EMPIRICAL LEGAL RESEARCH (2015), but the resulting data was too granular for useful data analysis given the small number of cases.

163. These were coded as binary variables: [cafc_roberts_cite] and [cafcop_kennedy_cite].

creating or conferring property rights on its owners (including the right to exclude others),[164] whether the Federal Circuit's decision discussed the fact that the patentee was a non-practicing entity,[165] and the Federal Circuit's conclusion regarding each *eBay* factor if one was reached.[166] In addition, if a Federal Circuit judge issued a separate concurring or dissenting opinion regarding injunctive relief, a dummy variable was coded[167] and a separate entry was created for this opinion.[168] Finally, a text field was created for any particularly interesting or significant discussion regarding the case or the Federal Circuit's reasoning on injunctive relief.[169]

C. Limitations

Before discussing the study's findings, it is important to note several potential limitations of the data collected.[170] First, patent litigation is often complex and frequently involves numerous issues, such as claim construction, infringement (direct and indirect), various grounds for invalidity, other defenses (such as inequitable conduct, exhaustion, laches, and prosecution history estoppel), and remedies.[171] Moreover, the parties' strategic objectives in litigation can vary as well.[172] As a result, it can be "difficult to make generalizations about patent litigation from the study of individual cases."[173]

Second, this study is based primarily on litigated court decisions, which are subject to well-known selection effects. "[T]he selection effect

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164. This was coded as a binary variable: [cafcop_prop_rights].

165. This was coded as a binary variable: [cafcop_discuss_npe].

166. These were coded as four separate binary variables: [cafcop_ebay_factor1], [cafcop_ebay_factor2], [cafcop_ebay_factor3], and [cafcop_ebay_factor4]. If the Federal Circuit did not discuss the merits of one or more *eBay* factors—for example, because it concluded that a permanent injunction was not warranted because the patentee could not demonstrate irreparable harm and thus reversed the district court on this factor alone—these values were left blank.

167. This variable is: [separate_op].

168. To avoid confusion during data analysis, a dummy variable called [court] was created to represent whether the entry represented the decision of the Federal Circuit panel (either unanimously or by majority vote) (coded as 1) or whether the entry represented the separate opinion of an individual Federal Circuit judge (coded as 0).

169. This was coded as a string variable: [notes].

170. *See, e.g.*, David L. Schwartz, *Explaining the Demise of the Doctrine of Equivalents*, 26 BERKELEY TECH. L.J. 1157, 1187 (2011) ("All projects involving empirical studies of legal decisions have limitations").

171. *Id.*

172. *Id.*

173. *Id.*

refers to the proposition that the selection of tried cases is not a random sample of the mass of underlying cases."[174] This is because "[c]ases only go to trial when the parties substantially disagree on the predicted outcome."[175] Thus, when the applicable legal standard clearly favors one side, parties tend to settle their disputes rather than incur the expense of litigation, which can be considerable.[176] As a result, "the disputes selected for litigation . . . will constitute neither a random nor a representative sample."[177]

Here, the cases studied are not representative of all patent disputes, or even all patent infringement litigation, because each case must satisfy several requirements. First, the case must have reached a decision on the merits of the patentee's claim of infringement. Like other forms of civil litigation, the vast majority of patent cases settle before a decision on the merits of the lawsuit are reached.[178] Second, the patentee must have prevailed on liability (i.e., infringement and validity if raised as a defense), which occurs in a minority of all cases litigated to judgment.[179] Third, the prevailing patentee must seek a permanent injunction against future infringement instead of monetary damages (such as an ongoing royalty).[180] Fourth, the losing infringer must have opposed the entry of

174. 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 generally George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1 (1984).

175. Clermont & Eisenberg, *supra* note 174, at 1129.

176. The most recent edition of the *AIPLA Report of the Economic Survey* reports that median litigation costs exceed $5 million in patent infringement suits where more than $25 million is at stake. AM. INTELLECTUAL PROP. LAW ASS'N, AIPLA 2015 REPORT OF THE ECONOMIC SURVEY 37 (2015).

177. Priest & Klein, *supra* note 174, at 4.

178. *See* John R. Allison, Mark A. Lemley & David L. Schwartz, *Understanding the Realities of Modern Patent Litigation*, 92 TEX. L. REV. 1769, 1780 (2014) (finding that greater than 90% of patent lawsuits filed in 2008 and 2009 settle or are otherwise resolved without a decision on the merits); 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).

179. *See* Allison, Lemley & Schwartz, *supra* note 178, at 1787–88, 1788 fig.5 (finding that patentees prevailed in only 26% of cases litigated to final judgment that were filed in 2008 and 2009).

180. Gupta & Kesan, *supra* note 91, at 8 fig.2 (finding that the filing of permanent injunction motions in patent cases decreased from 3.3% of all cases in 2000 to 0.6% in 2012). An increasing number of patentees have sought a court-ordered ongoing royalty in lieu of a permanent injunction against future infringement. *See* Christopher B. Seaman, *Ongoing Royalties in Patent Cases After*

an injunction.[181] As a result, only a small fraction of patent cases filed during the relevant time period meet are included in the dataset.[182]

Third, hand coding of appellate dockets and court decisions can introduce bias or error. For example, if the coding instructions are imprecise or include room for subjectivity, this could introduce errors and negatively impact reproducibility.[183] However, this concern can be mitigated by creating, pilot-testing, and implementing written coding rules that all coders must follow, as was done in this study.[184] Another potential concern is that court dockets in patent cases can be complicated and difficult to understand, particularly for law students without any prior experience in patent litigation.[185] As a result, at least one co-author—both of whom have substantial patent litigation experience prior to joining the academy[186]—reviewed all initial coding decisions made by student research assistants. When the reviewing co-author was uncertain how a coding issue should be resolved, both co-authors reviewed the issue and made a joint decision.

Fourth, the dataset contains a relatively small number of Federal Circuit merits decisions regarding permanent injunctive relief. Although the authors collected information regarding appeals in nearly 200 patent cases, the Federal Circuit only reached a merits decision on the injunction issue in 42 of those cases. This results in relatively low

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eBay*: An Empirical Assessment and Proposed Framework*, 23 TEX. INTELL. PROP. L.J. 203, 216–18 (2015).

181. *See* Seaman, *supra* note 5, at 1976 & n.174 (explaining why only contested injunction decisions were included in the district court dataset).

182. *Compare* LEX MACHINA, 2014 PATENT LITIGATION YEAR IN REVIEW 1 (2014) (stating that over 25,000 patent cases were filed in the district courts from 2007–2014), *with* Seaman, *supra* note 5, at 1976, app. A at 2007–19 (listing 218 injunction decisions in the district court dataset).

183. Jason Rantanen, *Empirical Analyses of Judicial Opinions: Methodology, Metrics and the Federal Circuit*, 49 CONN. L. REV. 227 (2016).

184. In empirical research, written coding instructions are preferred so that 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." Mark A. Hall & Ronald F. Wright, *Systematic Content Analysis of Judicial Opinions*, 96 CALIF. L. REV. 63, 81 (2008); *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"). The authors' written coding instructions will be made available upon request.

185. *See, e.g.*, Allison, Lemley & Schwartz, *supra* note 178, at 1774 (noting that coding of court dockets and outcomes "in patent cases[] is notoriously difficult and time consuming, requiring deep knowledge of patent law and litigation," and therefore declining to use student coders).

186. Professor Seaman worked on patent litigation matters between 2005 and 2009 with the law firm Sidley Austin LLP, and Professor Holte worked on patent litigation matters with the law firms Finnegan and Jones Day for over four years.

statistical power (although it represents the entire population of relevant appeals decisions during the study period).[187] It also increases the possibility of a Type II error (i.e., false negative) in hypothesis testing.[188] As a result, some traditional statistical tools, such as maximum likelihood-based logistic regression analysis, were not employed.[189] Instead, a descriptive approach was taken for hypotheses related to the Federal Circuit's reasoning for injunction decisions.[190]

III. RESULTS AND DISCUSSION

This Part presents the findings from analysis of the dataset and some implications of these findings for patent law and litigation, as well as innovation policy more generally.[191] All data analysis was conducted using Stata 14.1.[192]

A. Findings

1. Appeals Filed

A threshold issue studied was how often one or more parties filed an appeal to the Federal Circuit. Since the bulk of litigation costs in patent cases occur at the trial court level,[193] a high percentage of cases

187. *See generally* JACOB COHEN, STATISTICAL POWER ANALYSIS FOR THE BEHAVIORAL SCIENCES (2d ed. 1988).

188. *See, e.g.*, CATHERINE S. TAYLOR, VALIDITY AND VALIDATION 70 (2013) ("Low statistical power occurs when the likelihood of Type II error is high, which can result from the use of a small sample size and/or when the true effect size is small.").

189. *See generally* Gary King & Langche Zeng, *Logistic Regression in Rare Events Data*, 9 POL. ANALYSIS 137 (Spring 2001) (explaining the problems associated with using logistic regression for rare events); *see also* Paul Allison, *Logistic Regression for Rare Events*, STAT. HORIZONS (Feb. 13, 2012), https://www3.nd.edu/~rwilliam/stats3/RareEvents.pdf [https://perma.cc/D7MW-QX63] ("[The] maximum likelihood estimation of the logistic model is well known to suffer from small-sample bias."). Instead, a type of logistic regression for use with small sample sizes called exact logistic regression was employed instead. *See infra* section III.A.7.

190. *See infra* sections III.A.8–9.

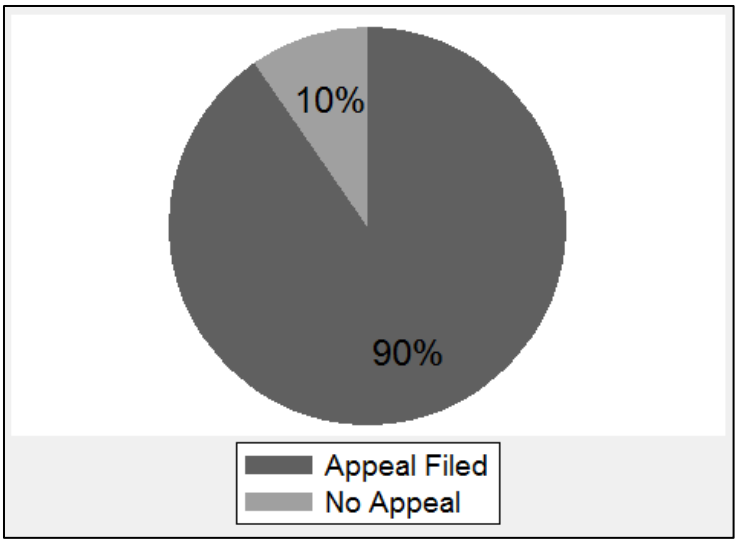
191. We did not analyze the Federal Circuit's discussion of individual *eBay* factors due to the small number of cases that reached a written decision on them. *See supra* note 161.

192. *Stata 14.1*, STATA DATA ANALYSIS AND STAT. SOFTWARE, http://www.stata.com/news/14-1/ [https://perma.cc/9HSP-8PZC].

193. *See* AM. INTELL. PROP. LAW ASS'N, *supra* note 176, at 37–40 (finding that litigation costs through end of discovery represented over half all litigation costs for patent cases involving $10 million and greater at issue); Meredith Addy, *Appellate Strategy Before the U.S. Court of Appeals for the Federal Circuit*, *in* PATENT LITIGATION, NEGOTIATION, AND SETTLEMENT (Aspatore ed., 2006) ("Generally, once a patent case has gone through a district court trial, it has already cost, on average, $3 to $5 million, or more. Comparatively, the cost of appeal is far less . . . [and] almost

involving injunction decisions were expected to be appealed. This prediction turned out to be accurate; appeals were filed in 90% of cases in the dataset (198 of 219 cases), as depicted in Figure 1.

Figure 1:
Percentage of Cases Appealed to Federal Circuit



This figure is consistent with prior studies, which also show that the vast majority of patent cases reaching a district court decision on the merits are appealed.[194] Interestingly, cases where the district court denied an injunction were appealed at a slightly higher rate than cases where courts granted an injunction, as shown in Table 1 below. This difference was statistically significant.[195]

always exponentially less than the initial litigation. Furthermore, judgments in many patent trials are in the hundreds of millions of dollars. Hence, the loser, naturally, wants to appeal.").

194. *See, e.g.*, PRICEWATERHOUSECOOPERS LLP, 2016 PATENT LITIGATION STUDY 18 fig.22 (2016), http://www.pwc.com/us/en/forensic-services/publications/assets/2016-pwc-patent-litigation-study.pdf [https://perma.cc/UV9P-HR7T] (stating that 80% of district court cases decided at trial between 2006 and 2013 were appealed to the Federal Circuit).

195. $p = 0.013$ using Pearson's chi-square test.

Table 1:
Percentage of Cases Appealed to Federal Circuit:
By District Court Injunction Decision

Appeal Filed	District Court Granted Injunction	District Court Denied Injunction
	88% (138 of 158 cases)	98% (60 of 61 cases)

Cases involving PAEs were also appealed to the Federal Circuit at a slightly higher rate than all other cases, as shown in Table 2 below. However, this difference was not statistically significant.[196]

Table 2:
Percentage of Cases Appealed to Federal Circuit: By PAE Status

Appeal Filed	Patentee Is PAE	Patentee Not PAE
	100% (25 of 25 cases)	89% (173 of 194 cases)

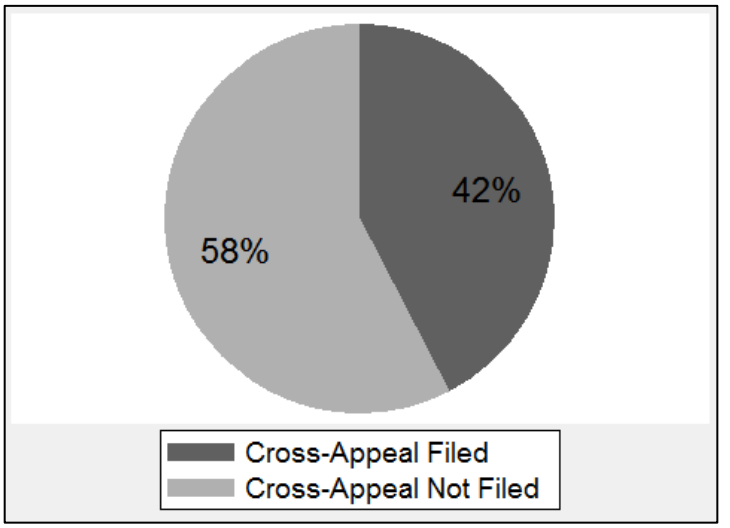
Cross-appeals by the other party on one or more issues are relatively common as well.[197] As illustrated in Figure 2 below, when an appeal was filed by one party, a cross-appeal was filed by the other party over 40% of the time (84 of 198 cases). Again, this result was generally consistent with other studies showing that a significant fraction, but less than a majority, of appeals in patent cases involved a cross-appeal as well.[198]

196. $p = 0.084$ using Pearson's chi-square test.

197. *See* FED. R. APP. P. 4(a)(3) (2016) ("If one party timely files a notice of appeal, any other party may file a notice of appeal within 14 days after the date when the first notice was filed, or within the time otherwise prescribed by this Rule 4(a), whichever period ends later.").

198. *See, e.g.*, PRICEWATERHOUSECOOPERS LLP, *supra* note 194, at 19 (showing that almost 30% of patent cases tried on the merits are appealed by both parties).

Figure 2:
Percentage of Cross-Appeals to Federal Circuit
(Appealed Cases Only)



In addition, cross-appeals were more likely to be filed in cases where the district court denied an injunction, as shown in Table 3 below. This difference was statistically significant.[199] In most of these cases, the cross-appealing party—usually the prevailing patentee—contested the district court's decision not to grant an injunction.

Table 3:
Percentage of Cross-Appeals to Federal Circuit:
By District Court Injunction Decision (Appealed Cases Only)

Cross-Appeal Filed	**District Court Granted Injunction**	**District Court Denied Injunction**
	34% (47 of 138 cases)	62% (37 of 60 cases)

199. $p < 0.001$ using Pearson's chi-square test.

2. Stays of Injunctive Relief

Another topic studied was the frequency of stays of permanent injunctions granted by courts. Ordinarily, a permanent injunction is effective upon issuance, preventing the infringer from making, using, selling, offering to sell, or importing any product that infringes the patent.[200] However, a court may delay the injunction's implementation by granting a stay. Stays may be granted by either the district court that issued the injunction or by the Federal Circuit upon motion.[201] To obtain a stay, the moving party "must establish a strong likelihood of success on the merits, or, failing that . . . demonstrate a substantial case on the merits provided that the harm factors militate in its favor."[202] If granted, the stay preserves the status quo by not enforcing the injunction for either a fixed period of time or until the merits of the appeal are decided.

Staying an injunction may help reduce the holdup problem associated with injunctions in patent cases.[203] "[F]aced with the certainty of a court-ordered injunction, an infringer likely will be willing to settle the suit by paying the patentee a higher price to practice the claimed invention," often with the price increase passed along to consumers.[204] But a stay may help mitigate this situation by granting the infringer a limited time period to implement a non-infringing design around with similar functionality, while continuing to offer the infringing product or service.[205] The court may impose a royalty for infringing sales during the

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200. 35 U.S.C. §§ 283, 271(a) (2012).

201. *See* FED. R. CIV. P. 62(c) (2016) (authorizing the district court to "suspend . . . an injunction on terms for bond or other terms that secure the opposing party's rights"); FED. R. APP. P. 8(a) (permitting a party to move for a stay of injunction pending appeal); Amado v. Microsoft Corp., 517 F.3d 1353, 1358 (Fed. Cir. 2008) ("[D]istrict courts possess broad equitable authority to modify injunctions. This broad authority, coupled with the wide discretion to manage the order in which they address issues pending before them, necessarily vests district courts with the authority to extend the stay of an injunction. . . .").

202. Aug. Tech. Corp. v. Camtek, Ltd., 395 F. App'x 692, 692–93 (Fed. Cir. 2010) (citing Hilton v. Braunskill, 481 U.S. 770, 778 (1987)).

203. *See infra* note 286 and accompanying text.

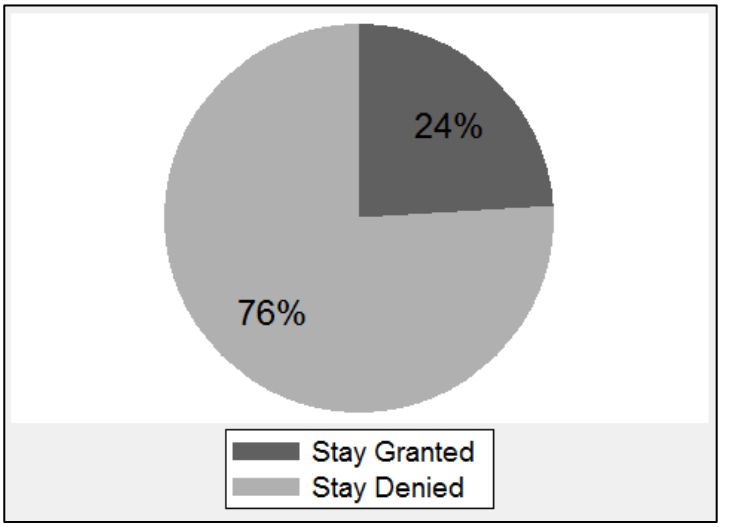
204. Tucker, *supra* note 2, at 1281.

205. *See, e.g.*, Fresenius Med. Care Holdings, Inc. v. Baxter Int'l, Inc., No. C 03-1431 SBA, 2008 WL 928496, at *3–4, *7 (N.D. Cal. Apr. 4, 2008) (delaying implementation of injunction by nine months to permit infringer to seek FDA approval for a design around); *see also* Lemley & Shapiro, *supra* note 90, at 2036–38. *But see* Vincenzo Denicolò et al., *Revisiting Injunctive Relief: Interpreting* eBay *in High-Tech Industries with Non-Practicing Patent Holders*, 4 J. COMP. L. & ECON. 571, 596 (2008) (contending that if "stays of injunctions [are] routinely granted . . . this . . . policy would penalize the most valuable patents").

stay period.[206] A stay may also be warranted when delaying implementation of the injunction would promote the public interest, such as ensuring the availability of products related to public health and safety.[207]

As illustrated in Figure 3, courts granted stays less than one-quarter of the time (24%, 38 of 158 cases) when the district court granted an injunction. This included cases where the court delayed the injunction's implementation during a "sunset" period and awarded an ongoing royalty instead.[208]

Figure 3:
Stays of Permanent Injunctions
(Injunction Granted by District Court Only)



206. *See, e.g.*, ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc., 827 F. Supp. 2d 641 (E.D. Va. 2011), *rev'd on other grounds*, 694 F.3d 1312, 1336–43 (Fed. Cir. 2012) (injunction vacated and remanded for entry of ongoing royalty).

207. *See, e.g.*, Smith & Nephew, Inc. v. Interlace Med., Inc., 955 F. Supp. 2d 69, 80 (D. Mass. 2013) (granting an injunction but staying its implementation pending appeal because "at least some doctors and their patients will suffer a negative impact if [the infringer] is enjoined from selling its medical device"); Nat'l Instruments Corp. v. Mathworks, Inc., No. 2:01-CV-11-TJW, 2003 WL 24049230, at *7 (E.D. Tex. June 23, 2003) (staying an injunction for eighteen months because the infringing product was used by automobile and airline manufacturers "when engineering safety features for their products").

208. *See, e.g.*, Broadcom Corp. v. Qualcomm Inc., 585 F. Supp. 2d 1187, 1188 (C.D. Cal. 2008) (explaining that the district court denied a motion to stay the permanent injunction, but allowed continuing sales of infringing products pursuant to a mandatory royalty for a "sunset period" of thirteen months).

Of these cases, district courts granted a stay 28 times, the Federal Circuit granted a stay 7 times, and in 3 cases both the district court and the Federal Circuit concluded that a stay was warranted. Interestingly, courts granted a stay of injunctive relief 75% of the time when a PAE obtained an injunction (3 of 4 cases), and this difference was statistically significant.[209]

3. Appeal Pendency

Data was also collected on the duration of appeals. During fiscal years 2006–2015, the Federal Circuit reported a median time to disposition of 11.6 months for appeals from district courts that terminated after a hearing (oral argument) or submission on the briefs.[210] For the most recent fiscal year (2015), the Federal Circuit reported a slightly higher disposition time of 12.0 months for appeals from district courts.[211]

The median time to disposition for appeals for all cases included in the dataset was 15.5 months. But this time varied substantially based on whether the Federal Circuit ultimately issued a merits decision on the appeal, either in a written opinion or through a Rule 36 summary affirmance.[212] As illustrated in Table 4 below, in cases where no merits decision was issued—usually when the parties voluntarily dismissed the

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209. $p = 0.014$ using Pearson's chi-square; $p = 0.04$ using Fischer's exact. Fischer's exact provides a better statistical test when there are small sample sizes. *See* Jenny V. Freeman and Michael J. Campbell, *The Analysis of Categorical Data: Fisher's Exact Test*, SCOPE (June 2007), http://www.shef.ac.uk/polopoly_fs/1.43998!/file/tutorial-9-fishers.pdf [https://perma.cc/29R7-ZXNM].

210. U.S. COURT OF APPEALS FOR THE FED. CIRCUIT, MEDIAN TIME TO DISPOSITION IN CASES TERMINATED AFTER HEARING OR SUBMISSION (2015), http://www.cafc.uscourts.gov/sites/default/files/Median%20Disposition%20Time%20for%20Cases%20Terminated%20after%20Hearing%20or%20Submission%20%28Detailed%20table%20of%20data%202006-2015%29.pdf [https://perma.cc/8ST6-YLFA]. The vast majority of appeals from district courts to the Federal Circuit involve patent claims. *Compare* U.S. COURT OF APPEALS FOR THE FED. CIRCUIT, APPEALS FILED IN MAJOR ORIGINS (2015), http://www.cafc.uscourts.gov/sites/default/files/the-court/statistics/appeals_filed_in_major_origins_10-year_06-15.pdf [https://perma.cc/R7YH-DA5W] (showing that between 600 and 650 appeals from district courts were filed in FY15), *with* U.S. COURT OF APPEALS FOR THE FED. CIRCUIT, FILINGS OF PATENT INFRINGEMENT APPEALS FROM THE U.S. DISTRICT COURTS (2015), http://www.cafc.uscourts.gov/sites/default/files/Caseload%20Patent%20Infringement%20%282006-2015%29.pdf [https://perma.cc/XH2P-ZU87].

211. MEDIAN TIME TO DISPOSITION IN CASES TERMINATED AFTER HEARING OR SUBMISSION, *supra* note 210; *see also* GIBSON DUNN, FEDERAL CIRCUIT YEAR IN REVIEW FOR 2013 – 2014 3 & 5, http://www.gibsondunn.com/publications/Documents/Federal-Circuit-2013-2014-Year-in-Review.pdf [https://perma.cc/TK2F-KUJL] (finding that average time from docketing to decision in district court patent appeals was fourteen months for precedential cases, and the time from district court decision to issuance of a Federal Circuit decision was seventeen months).

212. *See* FED. CIR. R. 36 (permitting the court to "enter a judgment of affirmance without opinion" in certain circumstances).

appeal pursuant to a settlement[213]—the median time to disposition was 9.6 months. In contrast, in cases involving a merits decision, the median time to disposition (as measured by date of issuance of the Federal Circuit's mandate) was 16.2 months.

Table 4:
Median Appeals Pendency: By Merits Decision

Median Months Pending	**Federal Circuit: No Merits Decision**	**Federal Circuit: Merits Decision**
	9.6 months	16.2 months

Table 5 below reports the mean (average) duration of appeals for cases in the dataset. The mean duration for all cases was 16.2 months. Cases involving no merits decisions terminated in a mean time of 12.0 months, while cases involving a merits decision were disposed of in 17.3 months. These time periods are longer than the median duration due to several outlier cases.[214]

Table 5:
Mean Appeals Pendency: By Merits Decision

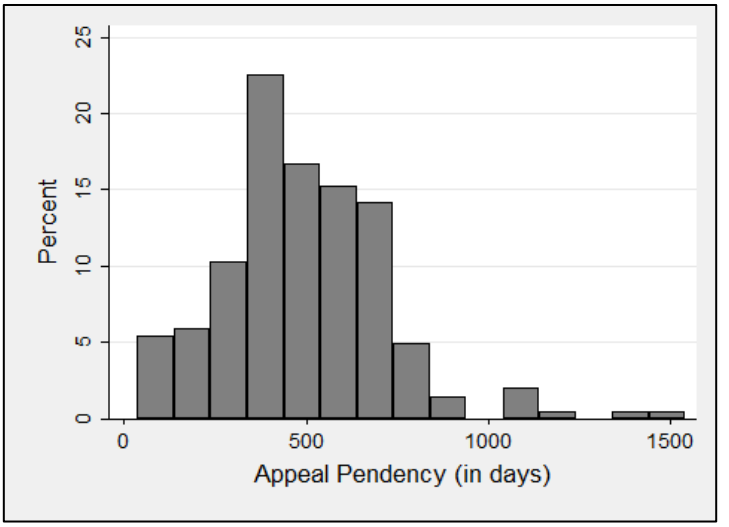
Mean Months Pending	**Federal Circuit: No Merits Decision**	**Federal Circuit: Merits Decision**
	12.0 months	17.3 months

Figure 4 shows the distribution of appeal pendency for all cases in the dataset where appeals were filed. It shows that the vast majority of appeals are resolved in less than 800 days (slightly over two years).

213. *See* FED. CIR. R. 42(b).

214. *See, e.g.*, Lighting Ballast Control LLC v. Philips Elecs. N. Am. Corp., 498 F. App'x 986 (Fed. Cir. 2013), *reh'g en banc granted and opinion vacated sub nom.*, 500 F. App'x 951 (Fed. Cir. 2013), *and on reh'g en banc*, 744 F.3d 1272 (Fed. Cir. 2014), *cert. granted, judgment vacated and remanded sub nom.*, Lighting Ballast Control LLC v. Universal Lighting Techs., Inc., __ U.S. __, 135 S. Ct. 1173 (2015); Teva Pharm. USA, Inc. v. Sandoz, Inc., 723 F.3d 1363 (Fed. Cir. 2013), *vacated*, __ U.S. __, 135 S. Ct. 831 (2015); Marine Polymer Techs., Inc. v. HemCon, Inc., 672 F.3d 1350 (Fed. Cir. 2012) (infringer filed bankruptcy during Federal Circuit appeal, resulting in stay of case).

Figure 4:
Appeal Pendency: Distribution



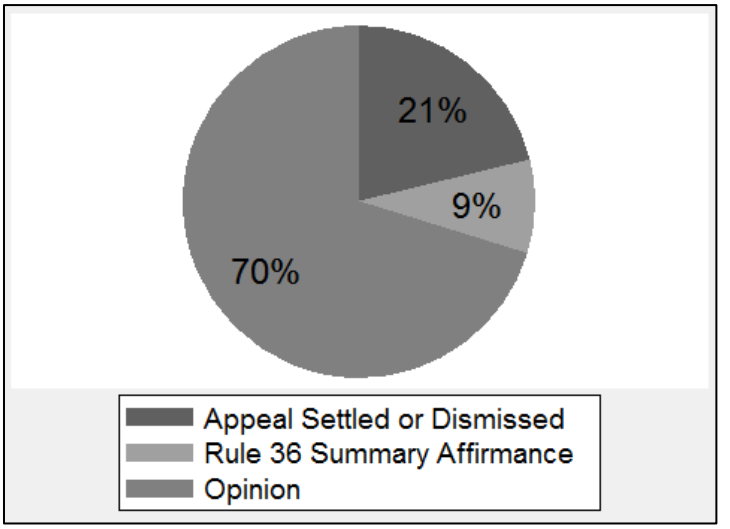
4. Disposition of Appeal

The dataset also contains information regarding how often appeals of patent cases that decided an injunction resulted in a merits decision on appeal. Not all appeals result in a merits decision; some cases may be appealed and later settled by the parties prior to a ruling. For example, a losing party may file an appeal even though it believes it will likely be unsuccessful in overturning the decision, hoping to negotiate a discount ("haircut") on the monetary judgment.[215]

Figure 5 below shows that most appeals for cases in the dataset result in a decision on the merits on at least one issue (79%, 156 of 198 cases). Only 21% of cases (42 of 198 cases) settled or were procedurally dismissed prior to a merits decision by the Federal Circuit. Of the appeals that did not settle or get dismissed, the Federal Circuit issued a written opinion in the vast majority (89%, 139 of 157 cases), while the remainder (11%, 17 of 156 cases) were decided by a Rule 36 summary affirmance.

215. *See* J.J. Prescott & Kathryn E. Spier, *A Comprehensive Theory of Civil Settlement*, 91 N.Y.U. L. REV. 59, 94 n.132 (2016) (noting that "[a] plaintiff often agrees to a haircut after the verdict in order to avoid appeals").

Figure 5:
Disposition of Appeal (Any Issue)



The authors reviewed all cases appealed to the Federal Circuit that resulted in a decision on the merits and classified 42 of them (representing 27% of all merits decisions) as involving a decision regarding the merits of the district court's decision on a permanent injunction. This included 25 cases where the Federal Circuit issued a written opinion and all 17 cases where the Federal Circuit issued a Rule 36 summary affirmance.

5. Affirmance Rates for Permanent Injunction Decisions

A central issue in this study is how often the Federal Circuit affirmed district court decisions granting and denying a permanent injunction post-*eBay*.[216] On appeal, the Federal Circuit reviews the district court's

216. We initially hoped to compare the reversal rate by the Federal Circuit for injunction decisions to prior empirical studies that evaluated reversal rates in Federal Circuit decisions more generally. *See* Moore, *supra* note 123, at 397 (finding a reversal rate of 22% in patent cases appealed to the Federal Circuit from district court judgments in 1993–1998); Field, *supra* note 123, at 759 (finding a 25% reversal rate by the Federal Circuit in patent cases for issues reviewed under an abuse of discretion standard); Ted Sichelman, *Myths of (Un)certainty at the Federal Circuit*, 43 Loy. L. A. L. Rev. 1161, 1174–75 (2010) (finding a 21% reversal rate by the Federal Circuit for all appealed issues from 2000–2007). However, in numerous cases, when the Federal Circuit decided not to affirm the district court on its injunction decision—particularly when the district court denied an injunction—the Federal Circuit vacated and remanded to the trial court, rather than granting a reversal. *See, e.g.*, WBIP, LLC v. Kohler Co., 829 F.3d 1317, 1343 (Fed. Cir. 2016) (vacating

decision regarding a permanent injunction for abuse of discretion,[217] a deferential standard of review.[218] An abuse of discretion exists when the trial court "made a clear error of judgment in weighing relevant factors or exercised its discretion based upon an error of law or clearly erroneous factual findings."[219]

For cases involving a merits decision on injunctive relief, there was a sharp split in affirmance rates by the Federal Circuit depending on whether the district court granted or denied injunctive relief to the prevailing patent owner. As shown in Figure 6, the Federal Circuit affirmed the district court's decision to grant a permanent injunction 88% of the time (22 of 25 cases),[220] while it affirmed the district court's decision to deny injunctive relief only slightly over half of the time (53%, 9 of 17 cases). This difference was statistically significant.[221]

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permanent injunction and remanding to "the district court to conduct a more thorough analysis of the *eBay* factors"); Apple Inc. v. Samsung Elecs. Co., 735 F.3d 1352, 1368–73 (Fed. Cir. 2013) (vacating the district court's finding that the patentee could not establish irreparable harm and remanding); Whitserve LLC v. Comput. Packages, Inc., 694 F.3d 10, 35–36 (Fed. Cir. 2012) (vacating the district court's denial of an injunction and remanding to district court "to address the propriety of prospective relief"); Presidio Components v. American Tech. Ceramics Corp., 702 F.3d 1351, 1362–64 (Fed. Cir. 2012) (holding that "the district court clearly erred in finding no irreparable injury," "vacat[ing] the district court's denial of [patentee's] motion for a permanent injunction and remand[ing] for a re-weighing of the four [*eBay*] factors"). As a result, we could not make an apples-to-apples comparison to reversal rates in these prior studies.

217. *See, e.g.*, Innogenetics, N.V. v. Abbott Labs., 512 F.3d 1363, 1379 (Fed. Cir. 2008) (citing Joy Techs., Inc. v. Flakt, Inc., 6 F.3d 770, 772 (Fed. Cir. 1993)).

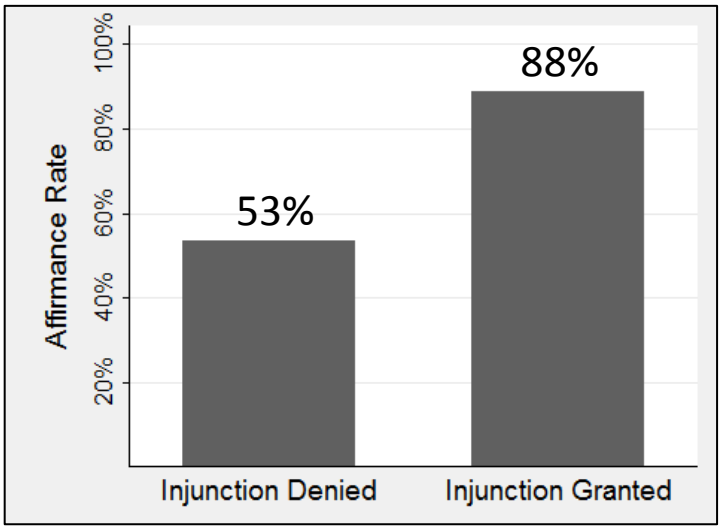
218. *See, e.g.*, Titan Tire Corp. v. Case New Holland, Inc., 566 F.3d 1372, 1375 (Fed. Cir. 2009) (noting that "[a]buse of discretion is a deferential standard of review"); *see also* Jonathan S. Masur & Lisa Larrimore Ouellette, *Deference Mistakes*, 82 U. CHI. L. REV. 643, 655 ("Appellate courts also apply deferential review to many decisions that involve legal judgments of possible future relevance, including . . . injunctions. . . .").

219. *Innogenetics*, 512 F.3d at 1379 (internal quotations and citation omitted).

220. The cases that are counted as affirmance on the merits of injunctive relief includes Fresenius USA, Inc. v. Baxter Int'l, Inc., 582 F.3d 1288 (2009), where the Federal Circuit held that "[t]he district court performed the appropriate analysis required by *eBay*" and concluded "that the district court did not abuse its discretion when it granted permanent injunctive relief." *Id.* at 1302–03. Despite this, the Federal Circuit vacated the injunction and remanded for reconsideration in light of the fact that it reversed the district court's grant of judgment as a matter of law regarding two of the patents-in-suit. *Id.* at 1303. As a result, the authors coded the cases as affirming the district court's conclusion that a permanent injunction was appropriate. Even if this case is counted as a non-affirmance, however, the difference in affirmance rates is still statistically significant under both Pearson's chi-square test and Fisher's exact test.

221. $p = 0.011$ using Pearson's chi-square test; $p = 0.015$ using one-tailed Fisher's exact test.

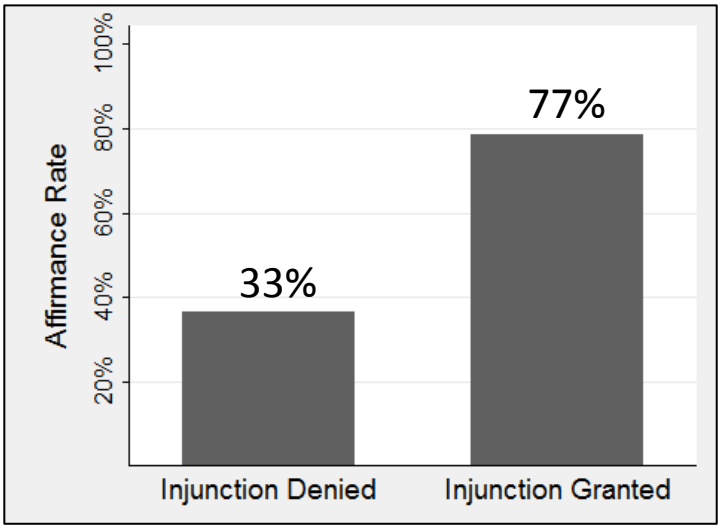
Figure 6:
Affirmance Rates - Permanent Injunction Decisions
(All Merits Decisions)



In addition, there is a similar difference in affirmance rates between cases where the district court granted and denied an injunction if summary affirmances under Rule 36 are excluded (i.e., only written decisions by the Federal Circuit are considered), as illustrated in Figure 7. For this subset of decisions, the Federal Circuit affirmed 77% of the time when the district court granted a permanent injunction (10 of 13 cases), compared to only 33% of the time when the district court denied a permanent injunction (4 of 12 cases). This difference remained statistically significant.[222]

222. $p = 0.028$ using Pearson's chi-square test; $p = 0.036$ using one-tailed Fisher's exact test.

Figure 7:
Affirmance Rates - Permanent Injunction Decisions
(Excluding Rule 36 Summary Affirmances)



6. Injunction Decisions by Federal Circuit Judge

The study also coded all cases in the dataset for each Federal Circuit judge's decision regarding the merits of injunctive relief. This was done to evaluate whether there were significant variations between members of that court in reviewing injunction decisions.

A new variable was created to determine how often each Federal Circuit judge was "pro-injunction."[223] A judge's decision on the merits of an injunction was classified as pro-injunction if either: (1) the judge voted to affirm the lower court's grant of a permanent injunction; or (2) the judge voted to not affirm (i.e., reverse, vacate, and/or remand) the lower court's denial of a permanent injunction. In contrast, a judge's decision was classified as "anti-injunction" if either: (1) the judge voted to affirm the lower court's denial of a permanent injunction; or (2) the judge voted to not affirm (i.e., reverse, vacate, and/or remand) the lower court's grant of a permanent injunction. If a judge's decision differed from the panel opinion—for example, by dissenting from the affirmance of the denial of an injunction—then the judge was coded separately. Rule 36 summary affirmances were included in this coding.

223. This variable is labeled in the dataset as [proinjunction].

Table 6 below shows the pro-injunction rates for all Federal Circuit judges who were active members of the court at some time between 2006 and 2015 and had at least five merits decisions on injunctive relief in the dataset.[224] It also shows the number of separate opinions (i.e., concurrences and dissents) authored by each judge regarding the propriety of injunctive relief; these opinions indicate areas of disagreement with the other members of the panel.

Table 6:
Percent Pro-Injunction Decisions, By Judge

Judge	**Pro-Injunction**	**N**	**Separate Opinions**
Rader	100%	10	1
O'Malley	89%	9	0
Gajarsa	83%	12	0
Prost	80%	15	3
Dyk	75%	8	0
Average: 71%			
Lourie	71%	7	0
Mayer	71%	7	1
Newman	70%	10	0
Reyna	60%	5	0
Moore	55%	11	0
Linn	50%	6	0
Bryson	43%	7	1

Given the small number of merits decisions per judge, it is not surprising that no Federal Circuit judge varied from the rest of the court's membership in a statistically significant way regarding injunctive relief. The only judge who unanimously ruled in favor of injunctive relief was former Chief Judge Randall Rader (10 for 10 decisions).[225] As

224. Excluded from Table 6 are Judges Chen (1 decision), Clevenger (2 decisions), Friedman (1 decision), Hughes (0 decisions), Michel (2 decisions), Plager (2 decisions), Schall (2 decisions), Stoll (0 decisions), Taranto (1 decision), and Wallach (4 decisions). Also excluded are district court judges who sat by designation as a member of the court pursuant to 28 U.S.C. § 292 (2012); they are collectively classified in the dataset as Other (4 decisions).

225. Chief Judge Rader had a statistically significant difference from the rest of the Federal Circuit using a simple multiple comparison test. $p = 0.035$ using Pearson's chi-square; $p = 0.034$ for Fisher's exact. However, this result was not significant after imposing a multiple testing penalty (Bonferroni correction). *See* MICHAEL O. FINKELSTEIN & BRUCE LEVIN, STATISTICS FOR LAWYERS 211 (2d ed. 2011).

explained in more detail below, Judge Rader's pro-injunction decisions are consistent with his characterization of patents as conferring a property-like right to exclude on their owners.[226]

7. Regression Analysis

As previously described, normal (maximum likelihood) logistic regression analysis of the Federal Circuit's merits decisions regarding injunctive relief was not feasible due to the relatively small number of such decisions in the dataset.[227] Instead, an alternative methodology suitable for use with small sample sizes called exact logistic regression was employed.[228]

Three different models were construed for this analysis.[229] In all three models, the Federal Circuit's affirmance of the district court was the dependent variable.[230] The first model (Model #1) used three independent variables: whether the district court had granted or denied an injunction;[231] whether the patentee was a PAE;[232] and whether the patentee and infringer were competitors in a product market.[233] The latter two variables were imported from Christopher Seaman's prior study of district court decisions, which found that both were correlated with injunction decisions at the district court level.[234] The second model (Model #2) added two more variables based on the field of technology of the asserted patent: whether the patent involved software or computer

226. *See infra* note 249 and accompanying text.

227. *See supra* note 189 and sources cited therein.

228. *See* Cyrus R. Mehta & Nitin R. Patel, *Exact Logistic Regression: Theory and Examples*, *in* 14 STAT. IN MED. 2143 (1995) (describing the underlying theory for exact conditional inference).

229. These models did not include judge assignment as a control variable because Federal Circuit judges are assigned to a representative cross-section of cases. *See* 28 U.S.C. § 46(b) (2012) (authorizing the Federal Circuit to "determine by rule a procedure for the rotation of judges from panel to panel to ensure that all of the judges sit on a representative cross section of the cases heard"); Fed. Cir. R. 47.2(b) ("Assignment of cases to panels will be made so as to provide each judge with a representative cross-section of the fields of law within the jurisdiction of the court."). *Cf.* Adam S. Chilton & Marin K. Levy, *Challenging the Randomness of Panel Assignments in the Federal Courts of Appeals*, 101 CORNELL L. REV. 1 (2015) (finding evidence of non-randomness in panel assignments in some federal circuits, but not studying the Federal Circuit).

230. *See supra* note 146 and accompanying text (describing [affirm]).

231. *See* Seaman, *supra* note 5, at 1977 n.182 (describing [injunction]).

232. *See id.* at 1988 n.243 (describing [pae]).

233. *See id.* at 1978 n.189 (2016) (describing [compete]).

234. *See id.* at 1988 fig.3, 1990 fig.4, 1996–98 tbl.3.

electronics;[235] and whether the patent involved a medical device.[236] The third model (Model #3) added one more variable: whether the district court that decided the permanent injunction motion in the first instance was the Eastern District of Texas,[237] the district with the largest number of new patent cases filed each year and a preferred forum for PAEs.[238]

The results of these three models are reported in Table 7 below. For each independent variable, the odds ratio—which is a measure of the strength of association between the independent variable and the dependent variable[239]—is reported, along with the 95% confidence interval in parentheses. An asterisk indicates statistical significance ($p < 0.05$) for a variable. Finally, the model score reported by Stata is reported in the final row.[240]

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235. This was coded as a dummy (binary) variable: [software_electronics]. The "computer software" and "electronics" technology categories from Seaman's district court study were combined to code for this variable. *See id.* at 1977 n.185.

236. This was coded as a dummy (binary) variable: [medicaldevice]. The "medical device" technology category from Seaman's district court study was used to code for this variable. *See id.*

237. This was coded as a dummy (binary) variable: [txed]. This information was derived from the [district] variable in Seaman's district court study. *See id.* at 1977 n.181.

238. *See* Daniel Klerman & Greg Reilly, *Forum Selling*, 89 S. CAL. L. REV. 241, 268 (2016) ("Notably, the Eastern District of Texas is especially popular with patent assertion entities . . . ."); 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, 214 (2007) (finding that patent trolls "have shown a clear preference for the Eastern District [of Texas] over other venues"); Mark Liang, *The Aftermath of* TS Tech*: The End of Forum Shopping in Patent Litigation and Implications for Non-Practicing Entities*, 19 TEX. INTELL. PROP. L.J. 29, 42–43 tbl.1 (2010) (listing the Eastern District of Texas as the top forum for infringement suits by non-practicing entities).

239. Odds ratios of greater than 1 indicate that the variable has a positive association with entry of a permanent injunction, while odds ratios of less than 1 indicate the variable has a negative relationship with entry of a permanent injunction. The amount by which the odds ratio is more or less than 1 reveals the magnitude of the association between the independent variable and the injunction decision. All odds ratios are reported to two decimal places. *See FAQ: How Do I Interpret Odds Ratios in Logistic Regression?*, UCLA INST. FOR DIGITAL RESEARCH AND EDUC., http://www.ats.ucla.edu/stat/mult_pkg/faq/general/odds_ratio.htm [https://perma.cc/B7G5-74RT].

240. The test of the overall model is a chi-square score, called "model score." *See Stata Data Analysis Examples*, UCLA INST. FOR DIGITAL RESEARCH AND EDUC., http://www.ats.ucla.edu/stat/stata/dae/exlogit.htm [https://perma.cc/J8TQ-GH7Z]. Higher values indicate better goodness-of-fit.

Table 7:
Exact Logistic Regression

Variable	**Odds Ratio (95% Confidence Interval)**		
	Model #1	**Model #2**	**Model #3**
injunction	6.58* (1.14 – 51.78)	8.57* (1.38 – 74.27)	7.59* (1.20 – 66.37)
pae	.79 (.03 – 72.9)	1.09 (.03 – 121.49)	.79 (.01 – 112.18)
compete	.94 (.02 – 6.4)	.46 (.02 – 6.48)	.38 (.01 – 5.70)
software_ electronics	-	1.25 (.12 – 14.47)	1.16 (.11 – 13.57)
medicaldevice	-	6.11 (.44 – 398.74)	4.58 (.31 – 304.84)
txed	-	-	.88 (.09 – $+\infty$) [median unbiased estimate]
Model Score	6.62	9.36	10.29

In all three models, the district court's decision whether to grant a permanent injunction is positively correlated with the Federal Circuit's decision whether to affirm the lower court's decision on this issue, and this correlation is statistically significant.[241] None of the other variables have a statistically significant relationship with Federal Circuit injunction decisions, a result that was surprising in light of the prior district court study.

8. Content Analysis of Federal Circuit Injunction Decisions

To further investigate the Federal Circuit's behavior for its decisions regarding injunctive relief, we engaged in content analysis of the written Federal Circuit opinions in the dataset that reached a merits decision on a permanent injunction.[242] This content analysis focused on two things: (1) discussion by the court regarding patents as conferring a property-

241. Model #1: $p = 0.032$; Model #2: $p = 0.016$; Model #3: $p = 0.027$.

242. *See generally* Hall & Wright, *supra* note 184 (explaining content analysis of judicial opinions as a form of empirical legal research).

based right to exclude on their owners; and (2) citations to Chief Justice Roberts' and Justice Kennedy's concurring opinions in *eBay*.

As previously discussed, based on prior studies, the authors hypothesized that Federal Circuit opinions favoring injunctive relief would tend to cite Chief Justice Roberts' concurrence in *eBay*, while opinions that disfavored injunctive relief would cite Justice Kennedy's concurrence instead.[243] In addition, opinions favoring injunctive relief were anticipated to refer to patents as property rights that conferred a right to exclude on their owners.[244]

After coding, seven Federal Circuit opinions in the dataset were found to discuss patents as conferring a property right,[245] three of which also cited Chief Justice Roberts' concurrence in *eBay*.[246] In all of these opinions, the Federal Circuit reached a pro-injunction outcome—namely, it either affirmed the district court's grant of a permanent injunction,[247] or it overturned a district court's denial of a permanent injunction.[248] Interestingly, four of these opinions emphasizing patents as creating property rights were authored by former Chief Judge Rader.[249] In addition, current Chief Judge Prost authored opinions in two of these cases that appeared to disagree with the notion that patents

243. *See* Holte, *supra* note 9, at 721 ("In reviewing post-*eBay* injunction cases, many other scholars have concluded 'a review of post-*eBay* federal district court decisions shows that though it is not the opinion of the Court, [Justice] Kennedy's concurrence has proven to be highly persuasive.'" (internal quotations and citations omitted)); *supra* notes 137–38.

244. *See supra* note 137.

245. Apple Inc. v. Samsung Elecs. Co., 735 F.3d 1352, 1363 (Fed. Cir. 2013); Broadcom Corp. v. Emulex Corp., 732 F.3d 1325, 1337–38 (Fed. Cir. 2013); Douglas Dynamics, LLC v. Buyers Products Co., 717 F.3d 1336, 1345 (Fed. Cir. 2013); Presidio Components, Inc. v. Am. Tech. Ceramics Corp., 702 F.3d 1351, 1362–63 (Fed. Cir. 2012); Edwards Lifesciences AG v. CoreValve, Inc., 699 F.3d 1305, 1314 (Fed. Cir. 2012); Robert Bosch LLC v. Pylon Mfg. Corp., 659 F.3d 1142, 1149 (Fed. Cir. 2011); Acumed LLC v. Stryker Corp., 551 F.3d 1323, 1328 (Fed. Cir. 2008).

246. *Broadcom*, 732 F.3d at 1338; *Presidio Components*, 702 F.3d at 1362; *Robert Bosch*, 659 F.3d at 1149. There was also a fourth opinion citing Chief Justice Roberts, but only in a footnote discussing the district court's likely reasoning. *See* Fresenius USA, Inc. v. Baxter Int'l, Inc., 582 F.3d 1288, 1302 n.4 (Fed. Cir. 2009) ("Read in context, the 'all but inevitable' statement does not amount to legal error, particularly in light of the fact that the district court applied the correct four-factor test and explained its analysis. The district court was likely merely acknowledging, as did Chief Justice Roberts in *eBay*, that 'courts have granted injunctive relief upon a finding of infringement in the vast majority of patent cases.'" (citing eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 395 (Roberts, C.J., concurring))).

247. *Broadcom*, 732 F.3d at 1338; *Acumed*, 551 F.3d at 1327–31.

248. *Apple*, 735 F.3d at 1363; *Douglas Dynamics*, 717 F.3d at 1345; *Presidio Components*, 702 F.3d at 1362–63; *Edwards Lifesciences*, 699 F.3d at 1314–16; *Robert Bosch*, 659 F.3d at 1149.

249. *Broadcom*, 732 F.3d 1325; *Douglas Dynamics*, 717 F.3d 1336; *Presidio Components*, 702 F.3d 1351; *Edwards Lifesciences*, 699 F.3d 1305.

generally confer the right to exclude through an injunction.[250] As a result, there appears to be differing views among some members of the Federal Circuit regarding property versus liability rule remedies in patent infringement cases.[251]

Only two Federal Circuit merits opinions on injunctive relief cited to Justice Kennedy's concurring opinion in *eBay*, and contrary to expectations, both of these decisions reached a pro-injunction outcome. In one of these cases, the Federal Circuit concluded that the district court abused its discretion in holding that the patentee did not satisfy the first two *eBay* factors.[252] In the second case, the court reversed the district court's denial of a permanent injunction, citing to Kennedy's opinion only to distinguish the facts of that case from situations where Justice Kennedy suggested that injunctive relief might be inappropriate.[253] This

250. *See Apple*, 735 F.3d at 1363 ("Apple argues that . . . the plaintiff has a 'property right granting the plaintiff the right to exclude' . . . However, as the Supreme Court made clear in *eBay*, 'the creation of a right is distinct from the provision of remedies for violations of that right.'"); *Edwards Lifesciences*, 699 F.3d at 1316–17 (Prost, J., concurring) ("To the extent that one reads this statement as creating the presumption of an injunction once the plaintiff prevails, which must be rebutted by the defendant, that is not the law . . . *eBay* made clear that there is no general rule that a successful plaintiff is entitled to an injunction; rather, the plaintiff bears the burden of establishing the four equitable factors that weigh in its favor in order to obtain a permanent injunction. We should take care to avoid possible misinterpretation of an otherwise clear Supreme Court standard."); Apple Inc. v. Samsung Elecs. Co., Ltd., 809 F.3d 633, 662–63 (Fed. Cir. 2015) (Prost, C.J., dissenting) (dissenting from the majority's conclusion that an injunction should issue, citing Justice Kennedy's concurrence in *eBay* and stating "[f]or the same reason, the statutory right to exclude should not categorically bias the public interest factor '*strongly*' in the determination of the injunctive remedies as the majority asserts." (emphasis in original)).

251. This conclusion has also been noted by other scholars. Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1111–12 (2003) ("These statistical and doctrinal shifts, coupled with scattered commentary from particular Federal Circuit judges, suggest that at least some members of the Federal Circuit view patents rights as a relatively unalloyed good, comparable to rights in tangible property.").

252. *See Apple*, 735 F.3d at 1372–73 ("Apple's requested injunction relative to the scope of the patented features and the prospect that an injunction would have the effect of depriving the public of access to a large number of non-infringing features." (citing eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 395 (Kennedy, J., concurring))).

253. The Federal Circuit reasoned in *Robert Bosch* as follows:

> Although *eBay* abolishes our general rule that an injunction normally will issue when a patent is found to have been valid and infringed . . . it does not follow that courts should entirely ignore the fundamental nature of patents as property rights granting the owner the right to exclude. Indeed, this right has its roots in the Constitution, as the Intellectual Property Clause of the Constitution itself refers to inventors' "*exclusive* Right to their respective . . . [d]iscoveries. . . ." "Discretion is not whim, and limiting discretion according to legal standards helps promote the basic principle of justice that like cases should be decided alike." *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. at 395 (2006) (Roberts, J., concurring) (quoting *Martin v. Franklin Capital Corp.*, 546 U.S. 132, 139, 126 S.Ct. 704, 163 L.Ed.2d 547 (2005)). In this area, as others, "a page of history is worth a volume of logic" when "it comes to discerning and applying those standards." *Id.* (quoting *New York Trust Co. v. Eisner*, 256 U.S. 345, 349 (1921) (Holmes, J.)). This wisdom is particularly apt in traditional cases, such as this, where the patentee and adjudged infringer both practice the patented technology. *See id.* at

is in clear contrast to the impact Justice Kennedy's concurrence has had in district courts, where it has been frequently cited to deny injunctive relief, particularly in cases involving PAEs.[254]

9. Minority Case Details

Finally, in light of the small number of cases where a district court's denial of an injunction was affirmed by the Federal Circuit,[255] or, even more scarce, where a district court's grant of an injunction was not affirmed,[256] descriptive detail on these cases may shed some additional light on instances where the Federal Circuit concludes that injunctive relief is not appropriate.

For the nine cases since *eBay* where the Federal Circuit affirmed a district court injunction denial, an important first observation is that four of these cases concern medical device technology.[257] Of the five non-medical device cases, three were Rule 36 summary affirmances,[258] and one case concerned a unique cross-appeal between Apple and Motorola.[259] There, the court (with two separate opinions) reversed the denial of an injunction to Apple while affirming the injunction denial as

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396–97 (Kennedy, J., concurring) (contrasting the relevant considerations in traditional patent infringement actions with certain cases arising now "in which firms use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees," "[w]hen the patented invention is but a small component of the product," and those involving "the burgeoning number of patents over business methods").

659 F.3d at 1149–50 (citations in original) (internal citation omitted).

254. *See* Holte, *supra* note 9, at 721–22 (discussing the reliance by many district courts on Justice Kennedy's concurring opinion in *eBay* and its general disapproval of PAEs).

255. The Federal Circuit affirmed injunction denials in nine cases: Hypoxico Inc. v. Colorado Altitude Training LLC, 608 F. App'x 946 (Fed. Cir. 2015); Apple Inc. v. Motorola, Inc., 757 F.3d 1286 (Fed. Cir. 2014) (Motorola as patentee); Tyco Healthcare Group LP v. Applied Med. Resources Corp., 579 F. App'x 1005 (Fed. Cir. 2014); Valeant Int'l Bermuda v. Actavis, Inc., 534 F. App'x 999 (Fed. Cir. 2013); Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc., 670 F.3d 1171 (Fed. Cir. 2012); Emcore Corp. v. Optium Corp., 408 F. App'x 355 (Fed. Cir. 2011); Cygnus Telecomms. Tech., LLC v. Worldport Commc'ns, Inc., 302 F. App'x 921 (Fed. Cir. 2008); Voda v. Cordis Corp., 536 F.3d 1311 (Fed. Cir. 2008); Amado v. Microsoft Corp., 517 F.3d 1353 (Fed. Cir. 2008).

256. The Federal Circuit reversed district court injunction grants in three cases: ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc., 694 F.3d 1312 (Fed. Cir. 2012); Innogenetics, N.V. v. Abbott Labs., 512 F.3d 1363 (Fed. Cir. 2008); MPT, Inc. v. Marathon Labels, Inc., 258 F. App'x 318 (Fed. Cir. 2007).

257. *Hypoxico*, 608 F. App'x 946; *Tyco Healthcare*, 579 F. App'x 1005; *Bard*, 670 F.3d 1171; *Voda*, 536 F.3d 1311.

258. *Valeant*, 534 F. App'x 999; *Emcore*, 408 F. App'x 355; *Cygnus Telecomms.*, 302 F. App'x 921.

259. *Apple*, 757 F.3d 1286.

to Motorola's FRAND-pledged patents.[260] The final case concerned a procedural challenge after an injunction was originally granted by the district court and affirmed by the Federal Circuit pre-*eBay*, but the injunction was later dissolved by the district court after *eBay*.[261]

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260. At the district court, Apple filed a complaint against Motorola for infringement of three patents, and Motorola counterclaimed, alleging that Apple infringed six of Motorola's own patents. *Id.* at 1294. The district court, based largely on its claim construction decisions, granted summary judgment that neither party was entitled to damages or an injunction and dismissed all claims with prejudice before trial. *Id.* On appeal, the parties contested the district court's claim construction, admissibility, damages, and injunction decisions for three Apple and three Motorola patents. *Id.* The Federal Circuit affirmed a majority of the district court's claim construction decisions with the exception of certain "heuristic" claim limitations, *id.* at 1294–1313, and reversed the district court's grant of summary judgement of no damages for infringement of Apple's patents. *Id.* at 1313–22, 1327–30. Based on its reversal of the district court's construction of the "heuristic" limitations, the court also vacated the grant of summary judgment denying Apple's request for an injunction. *Id.* at 1330–31.

Regarding Motorola's claims, the court affirmed the district court's decision that Motorola was not entitled to an injunction for infringement of its FRAND (fair, reasonable, and nondiscriminatory) committed patent. *Id.* at 1331–32. The court noted, however, that to the extent the district court applied a per se rule that injunctions are unavailable for any standard-essential patents, it erred, explaining that it saw no reason to create a separate rule or analytical framework for addressing injunctions for FRAND-committed patents. *Id.* Rather, the court held that "[t]he framework laid out by the Supreme Court in *eBay*, as interpreted by subsequent decisions of this court, provides ample strength and flexibility for addressing the unique aspects of FRAND committed patents and industry standards in general." *Id.* at 1332.

Chief Judge Rader dissented as to the portion of the court's opinion affirming the district court's denial of Motorola's request for an injunction finding that the district court did not develop the facts necessary to apply *eBay* as it should have and, thus, the case should be remanded. *Id.* at 1332–34 (Rader, C.J., dissenting in part). Judge Prost dissented with respect to the majority's decision to vacate the district court's grant of summary judgment regarding Apple's request for an injunction. Judge Prost agreed with the district court that Apple could not show that Motorola's infringement caused it irreparable harm and, thus, would affirm the district court's grant of summary judgment of no injunctive relief. *Id.* at 1340–42 (Prost, J., concurring in part and dissenting in part). The judge also agreed with the panel decision that Motorola should not receive an injunction. *Id.* at 1342–43.

261. This appeal involved an original district court injunction-grant that was previously affirmed by the Federal Circuit. *Amado*, 517 F.3d at 1356 (citing Amado v. Microsoft Corp, 185 F. App'x 953 (Fed. Cir. 2006)). After remand from the first appeal, the district court dissolved the injunction in light of the Court's recent decision in *eBay*. *Id.* at 1359. Appealing this order, the patentee argued

> that because the *eBay* decision was handed down before [the Federal Circuit] decision in *Amado I*, albeit after the completion of briefing, and because the permanent injunction was included within [the Federal Circuit] mandate in *Amado I*, the mandate rule foreclosed Microsoft from challenging the injunction or the district court from modifying it.

Id. Microsoft argued that "the propriety of the permanent injunction was not at issue in the first appeal, and thus was outside the scope of the [Federal Circuit's] mandate. Alternatively, it argue[d] that *eBay* is an intervening decision and is thus an exception to the mandate rule." *Id.*

The Federal Circuit held that "the district court was well within its discretion in this case to reconsider the prospective application of the permanent injunction on remand in light of the Supreme Court's decision in *eBay*." *Id.* at 1361. It also concluded that "the district court's ultimate decision to dissolve the injunction was not an abuse of discretion, when, after applying the traditional four-factor test, it determined that an injunction was no longer equitable under the

Turning to the four medical device cases where the Federal Circuit affirmed the district court's denial of an injunction, two of the four were Rule 36 summary affirmances.[262] Of the remaining two cases, both opinions were authored by Judge Gajarsa. One opinion held that the district court did not abuse its discretion in relying heavily on the public interest *eBay* factor to deny injunctive relief,[263] and the second concluded that "[n]othing in *eBay* eliminates the requirement that the party seeking a permanent injunction must show that 'it has suffered an irreparable injury.'"[264] Accordingly, "monetary damages were adequate to compensate [the patentee.]"[265]

Finally, reviewing the cases where the Federal Circuit did not affirm a district court injunction grant, all three opinions were authored by Judge Moore.[266] In *MPT, Inc. v. Marathon Labels*,[267] the court concluded that "the district court's injunction is overly broad and therefore an abuse of discretion" and reversed.[268] In *Innogenetics, N.V. v. Abbott Labs*,[269] the court went through a lengthy discussion regarding the jury's reasonable royalty calculation and found error with the district court issuing an injunction after the patentee had already been awarded damages that included future sales; accordingly, the injunction grant was reversed.[270] Finally, in *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*,[271] the

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circumstances." *Id.* While the Federal Circuit did not analyze any of the *eBay* factors in the opinion, due to the court's language that "the district court's ultimate decision to dissolve the injunction was not an abuse of discretion," *id.*, the authors determined that this case should be categorized as an affirmance of an injunction denial.

262. *Hypoxico*, 608 F. App'x 946; *Tyco Healthcare*, 579 F. App'x 1005.

263. Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc., 670 F.3d 1171, 1192 (Fed. Cir. 2012).

264. Voda v. Cordis Corp., 536 F.3d 1311, 1329 (Fed. Cir. 2008) (quoting eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 393 (2006)).

265. *Id.*

266. ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc., 694 F.3d 1312, 1317 (Fed. Cir. 2012); Innogenetics, N.V. v. Abbott Labs., 512 F.3d 1363, 1363 (Fed. Cir. 2008); MPT, Inc. v. Marathon Labels, Inc., 258 F. App'x 318, 319 (Fed. Cir. 2007).

267. 258 F. App'x 318 (Fed. Cir. 2007).

268. *Id.* at 320.

269. 512 F.3d 1363, 1363 (Fed. Cir. 2008).

270. *Id.* at 1380 ("The reasonable royalties awarded to Innogenetics include an upfront entry fee that contemplates or is based upon future sales by Abbott in a long term market. When a patentee requests and receives such compensation, it cannot be heard to complain that it will be irreparably harmed by future sales. Moreover, this factor greatly outweighs the other *eBay* factors in this case. As a result, the district court's grant of an injunction prohibiting future sales of Abbott's genotyping assay kits was an abuse of discretion and must be vacated.").

271. 694 F.3d 1312, 1317 (Fed. Cir. 2012).

court held that the district court clearly erred in finding for the patentee on the first three *eBay* factors.[272]

B. Implications

This study's findings have several implications for both participants and policy makers in the patent system. The most important finding is that the Federal Circuit appears to be more favorable to patentees than the trial courts when it comes to awarding injunctive relief. Patentees that receive a permanent injunction at the district court are almost always affirmed on the merits on appeal, while patentees that lose on a permanent injunction motion received a favorable decision only about half the time (i.e., reversed, vacated, and/or remanded). In other words, the Federal Circuit appears inclined toward awarding injunctions—a property-rule remedy against future infringement—when a patent is found to be infringed and not invalid.

Notably, this finding suggests that the Federal Circuit is attempting to correct *ex post* the district courts' efforts to limit the availability of injunctive relief post-*eBay*. Numerous scholars, including us, have previously critiqued district courts' application of *eBay*, arguing that they have effectively interpreted the decision to create de facto rules denying injunctive relief to certain categories of patentees like non-competitors and non-practicing entities.[273] By generally affirming decisions where injunctive relief was granted while overturning around half of decisions where injunctions were denied, the Federal Circuit appears to be sending a clear

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272. *Id.* at 1342.

273. *See, e.g.*, Gergen, Golden & Smith, *supra* note 99, at 244–45 ("The Supreme Court's *eBay* opinion specifically indicated that courts should not adopt a 'categorical rule' denying injunctions for nonpracticing entities . . . . Nonetheless, commentators have reported that district courts' actual practice appears substantially to conform to the forbidden rule. If true, the practical result of the lower courts' application of *eBay* is an approach to injunctive relief that systematically disfavors patentees who lack the resources to commercialize their processes or products directly or immediately." (footnotes omitted)); Holte, *supra* note 9, at 719–23 (explaining how district courts' application of *eBay* and reliance of Justice Kennedy's concurrence have "greatly diminished" the availability of injunctive relief, particularly for non-practicing entities) ; Seaman, *supra* note 5, at 1953 (contending that "district courts appear to have adopted a de facto rule against injunctive relief for [patent assertion entities] and other patent owners who do not directly compete in a product market against an infringer"); Venkatesan, *supra* note 133, at 30 ("District courts have almost without exception divided patentees into two camps—those who sell or manufacture products and compete against the infringers, and those who have not commercialized their inventions and seek to earn revenues from licensing. The former have generally been granted injunctions, whereas nonpracticing patentees have generally been denied."); *cf.* Jeremy Mulder, *The Aftermath of* eBay*: Predicting When District Courts Will Grant Permanent Injunctions in Patent Cases*, 22 BERKELEY TECH. L.J. 67, 81–82 (2007) (noting that "post-*eBay* courts view the patentee as entitled to an injunction to protect its patented invention from direct competition," but that "the other side of this normative view leaves indirect competition beyond the reach of equitable remedy").

signal that district courts should be more expansive in awarding injunctive relief.

In particular, the Federal Circuit appears to be more willing to entertain requests by non-practicing entities for a permanent injunction than district courts. As explained, previous empirical studies found that district courts rarely grant injunctive relief to PAEs.[274] Although the number of cases where the Federal Circuit reached a merits decision on injunctive relief involving a PAE was small, it is notable that the Federal Circuit ruled in favor of the PAE in two of these three cases.[275] Indeed, the Federal Circuit has held that the patentee's failure to practice the asserted patent does not necessarily bar it from obtaining permanent injunctive relief.[276]

Another consequence of the Federal Circuit's preference for injunctive relief may be an increase in the aggregate value of patents. Backed by an injunction, a patent owner can exclude others from practicing the patented technology—under the penalty of contempt of court[277]—unless the infringer is willing to pay a licensing fee that the patent owner accepts as sufficient compensation for its loss of exclusivity.[278] As the Federal Circuit noted in its 2005 decision in *eBay*, "[i]f the injunction gives the patentee additional leverage in licensing, that is a natural consequence of the right to

274. *See supra* notes 91–97 and accompanying text (finding that PAEs received injunctions only 16% of the time from district courts); Chien & Lemley, *supra* note 6, at 10 (finding that PAEs receive injunctions only 7% of the time when contested).

275. *See* Whitserve LLC v. Comput. Packages, Inc., 694 F.3d 10 (Fed. Cir. 2012) (vacating and remanding the district court's decision denying an injunction to a PAE); i4i Ltd. P'ship. v. Microsoft Corp., 598 F.3d 831 (Fed. Cir. 2010) (affirming the district court's grant of an injunction to a PAE). In the third case, the Federal Circuit summarily affirmed the district court's denial of an injunction to a PAE without discussion. Cygnus Telecomms. Tech., LLC v. WorldPort Comm'cns, Inc., 302 F. App'x 921 (Fed. Cir. 2008).

276. *See, e.g.*, Presidio Components, Inc. v. Am. Tech. Ceramics Corp., 702 F.3d 1351, 1363 (Fed. Cir. 2012) (overturning denial of permanent injunction despite the fact that the patentee did not practice the patent-in-suit, noting "[d]irect competition in the same market is certainly one factor suggesting strongly the potential for irreparable harm"); Broadcom Corp. v. Qualcomm Inc., 543 F.3d 683, 702–03 (Fed. Cir. 2008) (affirming permanent injunction where Broadcom sold indirectly competing, non-practicing product, supporting showing of irreparable harm); *cf.* Trebro Mfg., Inc. v. Firefly Equipment, LLC, 748 F.3d 1159, 1171 (Fed. Cir. 2014) (holding that the district court erred in denying a preliminary injunction, despite the fact that "[the patentee] does not presently practice the patent"); High Tech Med. Instrumentation, Inc. v. New Image Indus., Inc., 49 F.3d 1551, 1556–57 (Fed. Cir. 1995) (reversing grant of preliminary injunction due to "lack of commercial activity by the patentee," but noting "a patentee's failure to practice an invention does not necessarily defeat the patentee's claim of irreparable harm").

277. *See, e.g.*, TiVo Inc. v. EchoStar Corp., 646 F.3d 869 (Fed. Cir. 2011).

278. *See* David O. Taylor, *Using Reasonable Royalties to Value Patented Technology*, 49 GA. L. REV. 79, 157 (2014) (explaining that "injunctive relief requires an infringer wishing to remove the right of the patent owner to exclude the infringer from using the patented technology to buy that right from the patent owner in a . . . voluntary transaction at the subjective price agreed to by the patent owner").

exclude."[279] As a result, an injunction can give the "patentee a very powerful bargaining chip in licensing and settlement negotiations."[280] In sum, the Federal Circuit's apparent inclination toward injunctive relief—and thus more valuable patent rights—lends supports to the claim that the Federal Circuit has used its position as the primary appellate court over patent claims to shape the law in a pro-patentee direction.[281]

There appears to be, however, one notable exception to the Federal Circuit's apparent preference for injunctive relief: medical device cases. As previously explained, the district court affirmed injunction denials in 4 of 9 cases that involved a patent covering a medical device.[282] This may be due to the final *eBay* factor, whether the public interest would be disserved by an injunction; courts appear sensitive to concerns about potential adverse impacts on patients if an infringing device is enjoined without an available adequate substitute.[283] However, loss of the right to exclude via an injunction may dampen incentives to innovate in the medical device industry, as it may lower patent value in a field where the costs of developing and bringing a product to market are high due to the FDA's extensive testing requirements.[284]

Finally, our study finds that stays are relatively under-utilized; they are granted only about one-quarter of the time when an injunction is imposed.[285] Stays and other forms of delaying injunctive relief, such as "sunset" periods that allow for infringing sales to continue for a fixed period

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279. MercExchange L.L.C. v. eBay, Inc., 401 F.3d 1323, 1339 (Fed. Cir. 2005), *rev'd*, 547 U.S. 388 (2006).

280. Lily Lim & Sarah E. Craven, *Injunctions Enjoined; Remedies Restructured*, 25 SANTA CLARA COMPUTER & HIGH TECH. L.J. 787, 792 (2009).

281. *See supra* note 121 and sources cited therein.

282. *See supra* notes 257, 262–65 and accompanying text.

283. *See* Acumed LLC v. Stryker Corp., 551 F.3d 1323, 1331 (Fed. Cir. 2008) (acknowledging that in some cases "the public interest factor may so strongly weigh against enjoining the infringer that an injunction would be inappropriate"); Seaman, *supra* note 5, at 1999 n.311 and cases cited therein (noting that "several district court decisions have declined to award injunctive relief on the basis that it would disserve the public interest to restrict doctors' and patients' access to the infringing [medical] devices").

284. *See* Ronald J. Schutz & Patrick M. Arenz, *Non-Practicing Entities and Permanent Injunctions Post*-eBay, 12 SEDONA CONF. J. 203, 209 (2011) (explaining that while the public interest factor "is often most relevant in medical devices directly affecting health, a broader point can be made [that] ongoing royalties—as opposed to injunctions—reduce innovation further" in this industry); Laura Masterson, Note, *The Future of Medical Device Patents: Categorical Exclusion After* eBay, Inc. v. MercExchange, L.L.C., 20 B.U. J. SCI. & TECH. L. 274, 298 (2014) (explaining that "[t]he grant of a limited monopoly allows pioneer medical device firms to obtain financing required for the tremendous expense associated with research and development, clinical trials, and the expensive [premarket approval] process").

285. *See supra* section III.A.3.

of time, could be more widely used to avoid the alleged "holdup" costs associated with injunctions.[286] Litigants and courts should consider delaying implementation of injunctive relief in situations where it would permit the accused infringer to timely implement a design around,[287] usually contingent upon paying an ongoing royalty during the period before the injunction becomes effective.[288] However, stays and other time-based delays of injunctive relief should not result in an extended postponement that would lead to an effective loss of the patentee's right to exclude.[289] The appropriateness of a stay would, of course, depend on the individual circumstances of each case.

CONCLUSION

The findings from this empirical study indicate that the Federal Circuit is generally more favorable to prevailing patentees regarding permanent injunctive relief than the district courts following *eBay*. District courts that grant an injunction after a finding of liability are highly likely to be affirmed on appeal, whereas district courts that deny an injunction have a significantly lower affirmance rate. This suggests that the Federal Circuit is generally inclined toward a property rule rather than a liability rule as a remedy against future patent infringement. It also appears to lend support to claims by scholars and others that the Federal Circuit, as a specialized court with a large number of patent cases, is more pro-patentee than the generalist district courts.

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286. *See supra* note 90 and sources cited therein (describing the holdup problem).

287. *See* Lemley & Shapiro, *supra* note 90, at 2038 (contending that "[i]f the infringing firm claims that it can design around the patent, the court should issue a stay of its permanent injunction that is long enough to permit the infringing firm to complete the redesign, if there is one, in an efficient and timely manner").

288. *See, e.g.*, ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc., Nos. 2011–1538, –1567, 2012–1129, –1201, 2012 WL 10716768, at *1–2 (Fed. Cir. Apr. 2, 2012) (granting a stay of a permanent injunction for a six-month "sunset" period, contingent upon the accused infringer posting a bond for the payment of "sunset royalties that became due during the sunset period"); MeadWestvaco Corp. v. Rexam PLC, No. 1:10–CV–511, 2012 WL 2153165, at *6 (E.D. Va. June 12, 2012) ("When an injunction includes a sunset provision, courts may set a royalty rate for that period.").

289. *Cf.* Denicolò et al., *supra* note 205, at 596 (contending that routine granting of stays of permanent injunctions "whenever it is very costly or even impossible to design [around] the product in a non-infringing way . . . would penalize the most valuable patents—precisely, those that are the most difficult to circumvent even with full knowledge of the patent").

APPENDIX A: TABLE OF CASES

Plaintiff	**Defendant**	**Fed. Cir. Docket**	**Citation**
Briese Lichttechnik Verttriebs GmbH	Langton	2014-1253	589 F. App'x 536
XpertUniverse, Inc.	Cisco Sys., Inc.	2014-1328	597 F. App'x 630
TransPerfect Global, Inc.	MotionPoint Corp.	2015-1165	N/A
Global Traffic Techs., LLC	Emtrac Sys, Inc.	2014-1537	2015 WL 3513416
Bristol-Myers Squibb Co.	Mylan Pharms., Inc.	2014-1141	N/A
CardSoft, Inc.	VeriFone Holdings, Inc.	2014-1135	769 F.3d 1114
WBIP, LLC	Kohler Co.	2015-1038	2016 WL 3902668
Stryker Corp.	Zimmer Inc.	2013-1668	782 F.3d 649
Smith & Nephew, Inc.	Interlace Med., Inc.	N/A	N/A
WesternGeco L.L.C.	ION Geophysical Corp.	2013-1527	791 F.3d 1340
Halo Elecs., Inc.	Pulse Elecs., Inc.	2013-1472	769 F.3d 1371
Alps South, LLC	The Ohio Willow Wood Co.	2013-1452	787 F.3d 1379
Allergan, Inc.	Apotex Inc. et al.	2013-1245	754 F.3d 952
Unicom Monitoring, LLC	Cencom, Inc.	N/A	N/A
In re Armodafinil Patent Litig.		2013-1360	N/A
Tyco Healthcare Group LP	Ethicon Endo-Surgery Inc.	2013-1324	774 F.3d 968
VirnetX Inc.	Apple Inc.	2013-1489	767 F.3d 1308
Brocade Commc'ns Sys. Inc.	A10 Networks, Inc.	2013-1210	N/A
Apple, Inc.	Samsung Elecs. Co., Ltd.	2013-1129	735 F.3d 1352
E2Interactive, Inc.	Blackhawk Network, LLC	2013-1151	561 F. App'x 895
Graphic Packaging Intern., Inc.	C.W. Zumbiel Co.	2012-1672	N/A
Coloplast A/S	Generic Med. Devices, Inc.	N/A	N/A

Plaintiff	**Defendant**	**Fed. Cir. Docket**	**Citation**
Carl Zeiss Vision Int'l GmbH	Signet Armorlite, Inc.	N/A	N/A
Teva Pharms. USA, Inc.	Sandoz, Inc.	2012-1567	723 F.3d 1363
Integrated Tech. Corp.	Rudolph Techs., Inc.	2012-1593	734 F.3d 1352
Pfizer Inc.	Teva Pharms. U.S.A., Inc.	2012-1576	555 F. App'x 961
Valeant Int'l	Watson Pharms., Inc.	2012-1117	534 F. App'x 999
Gen. Elec. Co.	Mitsubishi Heavy Indus. Ltd.	2013-1500	N/A
Fractus, S.A.	Samsung Elecs. Co., Ltd.	2012-1633	N/A
Motorola, Inc.	Apple, Inc.	2012-1548	757 F.3d 1286
Apple, Inc.	Motorola, Inc.	2012-1549	757 F.3d 1286
St. Jude Med. Inc.	Access Closure Inc.	2012-1452	729 F.3d 1369
Research Found. of State Univ. of NY	Mylan Pharm.	2012-1523	531 F. App'x 1008
Schering Corp.	Mylan Pharm.	2012-1434	496 F. App'x 87
Layne Christensen Co.	Bro-Tech Corp. d/b/a The Purolite Co.	2012-1178	N/A
Hospira, Inc.	Sandoz Int'l GmbH	2012-1426	N/A
Meadwestvaco Corp.	Rexam PLC	2012-1518	731 F.3d 1258
Broadcom Corp.	Emulex Corp.	2012-1309	732 F.3d 1325
Medtronic Sofamor Danek USA, Inc.,	Nuvasive, Inc.	2013-1576	778 F.3d 1365
Conceptus, Inc.	Hologic, Inc.	2012-1209	2012 WL 10242277
Accentra, Inc.	Staples, Inc.	2012-1237	500 Fed App'x 922
Eli Lilly and Company	Actavis	N/A	N/A
ActiveVideo Networks, Inc.	Verizon Communications, Inc.	2011-1538	694 F.3d 1312
Hurricane Shooters, LLC	EMI Yoshi Inc.	N/A	N/A
The Paw Wash LLC	Paw Plunger LLC	2012-1240	494 F. App'x 93
Sanofi-Aventis Deutschland GmbH	Glenmark Pharms., Inc. USA	2012-1489	748 F.3d 1354

Plaintiff	**Defendant**	**Fed. Cir. Docket**	**Citation**
Versata Software Inc.	SAP Am., Inc.	2012-1029	717 F.3d 1255
Lighting Ballast Control LLC	Philips Elecs. N. Am. Corp.	2012-1014	498 F. App'x 986
Belden Tech. Inc.	Superior Essex Communications LP	2011-1608	N/A
Peach State Labs, Inc.	Envtl. Mfg. Solutions, LLC	N/A	N/A
Pozen Inc.	Par Pharma. Inc.	2011-1584	696 F.3d 1151
Inventio AG	Otis Elevator Co.	2009-1146	593 F.3d 1275
Midtronics Inc.	Aurora Performance	2011-1589	475 F. App'x 764
Soitec	MEMC Elec. Materials, Inc.	2011-1534	N/A
LG Elecs. USA Inc	Whirlpool Corp.	N/A	N/A
Metso Minerals Inc.	Powerscreen Int'l Distrib. Ltd.	2011-1572	526 F. App'x 988
ePlus, Inc.	Lawson Software, Inc.	2011-1396	700 F.3d 509
3D Sys., Inc.	Envisiontec, Inc.	2011-1340	426 F. App'x 914
B. Braun Melsungen AG	Terumo Corp.	2011-1400	2012 U.S. App. LEXIS 6086
WhitServe LLC	Computer Packages, Inc.	2011-1206	694 F.3d 10
Douglas Dynamics, LLC	Buyers Prods. Co.	2011-1291	717 F.3d 1336
Harris Corp.	Fed. Express Corp.	2012-1094	502 F. App'x 957
Affinity Labs of Texas LLC	BMW N. Am., LLC	2011-1350	N/A
K-Tec	Vita-Mix	2011-1244	696 F.3d 1364
Ernie Ball Inc.	Earvana	2012-1276	502 F. App'x 971
Brigham and Women's Hospital, Inc.	Teva Pharms.	2011-1217	457 F. App'x 927
Bendix Comm. Veh. Sys. Inc.	Haldex Brake Prods. Corp.	2011-1323	461 F. App'x 932
Otsuka Pharm.	Sandoz, Inc.	2011-1126	678 F.3d 1280
Robert Bosch, LLC	Pylon Mfg. Co.	2011-1096	659 F.3d 1142
Stone Strong, LLC	Delzotto Prods. of Fla., Inc.	2011-1156	455 F. App'x 964

Plaintiff	**Defendant**	**Fed. Cir. Docket**	**Citation**
Streck, Inc.	Research & Diagnostic Sys., Inc.	2011-1044	665 F.3d 1269
O2 Micro Int'l, Ltd.	Beyond Innovation Tech. Co.	2011-1054	449 F. App'x 923
Input/Output, Inc. (ION)	Sercel, Inc.	2011-1255	419 F. App'x 988
Marine Polymer Techs., Inc.	HemCon Inc.	2010-1548	672 F.3d 1350
ReedHycalog UK, Ltd.	Diamond Innovations Inc	2011-1010	456 F. App'x 886
ClearValue, Inc.	Pearl River Polymers, Inc.	2011-1078	668 F.3d 1340
Soverain Software LLC	Newegg, Inc.	2011-1009	705 F.3d 1333
Retractable Techs., Inc.	Occupational & Med. Innovations, Ltd. (OMI)	N/A	N/A
Alcon, Inc.	Teva Pharms. USA, Inc.	2010-1097	N/A
In re Alfuzosin Hydrochloride Patent Litig.		N/A	N/A
Dow Chem. Corp.	Nova Chems. Corp.	2010-1526	803 F.3d 620
Custom Designs of Nashville Inc.	Alsa Corp.	N/A	N/A
Cordance Corp.	Amazon.com, Inc.	2010-1502	658 F.3d 1330
Woods	Deangelo Marine Exhaust, Inc.	2010-1478	692 F.3d 1272
Mitsubushi Chem. Corp.	Barr Laboratories	2010-1432	435 F. App'x 927
LaserDynamics Inc	Quanta Computer, Inc	2011-1440	694 F.3d 51
Smith & Nephew Inc.	Arthrex, Inc.	2010-1427	453 F. App'x 977
Richter	Supa Tech.	N/A	N/A
Retractable Techs., Inc.	Becton, Dickinson & Co.	2010-1402	653 F.3d 1296
Tyco Healthcare Group LP	Applied Medical Resources Group	2013-1624	579 F. App'x 1005
Parker-Hannifin Corp.	Wix Filtration Corp.	2011-1347	N/A

Plaintiff	**Defendant**	**Fed. Cir. Docket**	**Citation**
Humanscale Corp.	CompX Int'l Inc.	2010-1549	457 F. App'x 921
Johnson & Johnson Vision Care	CIBA Vision Corp.	2010-1372	N/A
Ricoh Co.	Quanta Computer Inc.	2010-1332	N/A
Presidio Components	Amer. Tech. Ceramics	2010-1355	702 F.3d 1351
Judkins	HT Window Fashions Corp.	2010-1336	416 F. App'x 903
Eli Lilly & Co.	Sicor Pharms, Inc.	2010-1342	426 F. App'x 892
Arlington Indus. Inc.	Bridgeport Fittings, Inc.	2010-1377	477 F. App'x 740
Mytee Prods., Inc.	Harris Research, Inc.	2010-1207	439 F. App'x 882
Emcore Corp.	Optium Corp.	2010-1258	408 F. App'x 355
Innovention Toys, LLC	MGA Entm't, Inc.	2010-1290	637 F.3d 1314
I-Flow Corp.	Apex Med. Tech., Inc	N/A	N/A
IGT	Bally Gaming Int'l Inc.	2010-1364	659 F.3d 1109
Creative Internet Advertising Corp.	Yahoo Inc.	2010-1215	476 F. App'x 724
Japan Cash Machine Co.	MEI, Inc.	2010-1069	400 F. App'x 563
Cummins-Allison Corp.	SBM Co., Ltd.	2011-1049	484 F. App'x 499
Monsanto Co.	Bowman	2010-1068	657 F.3d 1341
The Western Union Co.	Moneygram International	2010-1080	626 F.3d 1361
Eli Lilly & Co.	Teva Pharms. USA, Inc.	2009-1071	619 F.3d 1329
Flexiteek Ams., Inc.	PlasTEAK, Inc.	2009-1501	400 F. App'x 559
Spectralytics Inc.	Cordis Corp.	2009-1564	649 F.3d 1336
Unigene Laboratories, Inc.	Apotex Inc. et al.	2010-1006	655 F.3d 1352
August Tech. Corp.	Camtek Ltd.	2010-1458	655 F.3d 1278
Merck Sharp & Dohme Pharm. SRL	Teva Pharm. USA, Inc.	2010-1009	N/A

Plaintiff	**Defendant**	**Fed. Cir. Docket**	**Citation**
Finjan Software Ltd.	Secure Computing Corp.	2009-1576	626 F.3d 1197
i4i LP	Microsoft Corp.	2009-1504	598 F.3d 831
Daiichi Sankyo Co., Ltd.	Mylan Pharms.	2009-1511	619 F.3d 1346
Medtronic Sofamor Danek USA, Inc.,	Globus Med., Inc.	2009-1525	416 F. App'x 67
iLight Techs., Inc.	Fallon Luminous Prods. Corp.	2009-1342	375 F. App'x 21
Transamerica Life Ins. Co.	Lincoln Nat'l Life Ins. Co.	2009-1403	609 F.3d 1364
Haemonetics Corp.	Baxter Healthcare Corp.	2009-1557	607 F.3d 776
Hypoxico Inc.	Colorado Altitude Training	2014-1544	608 F. App'x 946
Koninklijke Philips Elecs. NV	Power Media CD Tek, Inc.	N/A	N/A
Mass Eng'd Design, Inc.	Ergotron, Inc.	N/A	N/A
Bard Peripheral Vascular	W.L. Gore & Assocs., Inc	2010-1510	670 F.3d 1171
Kowalski	Mommy Gina Tuna Resources	2009-1332	366 F. App'x 149
Joyal Prods., Inc.	Johnson Elec. N. Am., Inc.	2009-1095	335 F. App'x 48
Hynix Semiconductor, Inc.	Rambus Inc.	2009-1299	645 F.3d 1336
Global Traffic Techs. LLC	Tomar Elecs., Inc	2009-1220	356 F. App'x 383
U.S. Philips Corp.	Iwasaki Elec. Co	2009-1252	449 F. App'x 1
Ariba Inc.	Emptoris Inc.	2009-1230	2010 WL 55625
Telcordia Techs., Inc.	Cisco Sys., Inc.	2009-1175	612 F.3d 1365
Funai Elec. Co., Ltd.	Daewoo Elecs. Corp.	2009-1225	616 F.3d 1357
Sensormatic Elec. Corp.	The Tag Co.	2009-1193	367 F. App'x 143
Vertical Doors Inc.	J.T. Bonn Inc.	2009-1414	449 F. App'x 17
Power Integrations, Inc.	Fairchild Semiconductor Intern.	2009-1169	345 F. App'x 563

Plaintiff	**Defendant**	**Fed. Cir. Docket**	**Citation**
Smith & Nephew Inc.	Arthrex Inc.	2009-1091	355 F. App'x 384
American Calcar Inc.	American Honda Motor Co.	2009-1503	651 F.3d 1318
Callaway Golf Co.	Acushnet Co.	2009-1076	576 F.3d 1331
Cam Guard Sys., Inc.	Smart Sys. Techs, Inc.	N/A	N/A
Becton Dickinson Co.	Tyco Healthcare	2009-1053	616 F.3d 1249
Extreme Networks, Inc.	Enterasys Networks, Inc.	2009-1325	395 F. App'x 709
Advanced Cardiovascular Sys., Inc.	Medtronic Vascular, Inc.	2009-1014	356 Fed App'x 389
Gemtron Corp.	Saint-Gobain Corp.	2009-1001	572 F.3d 1371
Pressure Prods. Med. Supplies Inc.	Quan Emerteq Corp.	2008-1602	599 F.3d 1308
TruePosition, Inc.	Andrew Corp.	2009-1389	389 F. App'x 1000
Emory Univ.	Nova Biogentics	N/A	N/A
Anascape, Ltd.	Nintendo of Am.	2008-1500	601 F.3d 1333
Grantley Patent Holding, Ltd.	Clear Channel Communications, Inc.	2008-1508	329 F. App'x 266
Trading Tech. Int'l	eSpeed	2008-1392	595 F.3d 1340
Kowalski	Ocean Duke Corp.	2008-1364	316 F. App'x 986
Power-One, Inc.	Artesyn Techs., Inc. (Emerson)	2008-1501	599 F.3d 1343
Fresenius USA, Inc.	Baxter Int'l Inc.	2008-1306	582 F.3d 1288
Chase Med., L.P.	CHF Techs., Inc.	2008-1335	311 F. App'x 343
Ecolab, Inc.	FMC Corp.	2008-1228	569 F.3d 1335
Orion IP, LLC	Mercedes-Benz USA	2009-1130	605 F.3d 967
Avid Identification Sys.	Philips Elecs. N. Am. Corp.	2009-1216	603 F.3d 967
Blackboard Inc.	Desire2Learn Inc.	2008-1368	574 F.3d 1371
Amgen	F. Hoffman-LaRoche Ltd.	2009-1020	580 F.3d 1340
Cygnus Telecommunications Tech., LLC	WorldPort Communications	2008-1351	302 F. App'x 921
ResQNet.com, Inc.	Lansa, Inc.	2008-1365	594 F.3d 860

Plaintiff	**Defendant**	**Fed. Cir. Docket**	**Citation**
Respironics, Inc.	Invacare Corp.	2008-1164	303 F. App'x 865
Broadcom Corp.	Qualcomm, Inc.	2008-1199	543 F.3d 683
DePuy Spine, Inc.	Medtronic Sofamor DA	2008-1240	567 F.3d 1314
Celerity, Inc.	Ultra Clean Holding Inc.	2008-1205	296 F. App'x 45
Acumed, LLC	Stryker Corp.	2008-1124	551 F.3d 1323
Martek Biosciences Corp.	Nutrinova, Inc.	2008-1459	579 F.3d 1363
Sundance, Inc.	DeMonte Fabricating Ltd.	2008-1068	550 F.3d 1356
Koninklijke Philips Elecs. NV	Int'l Disc Mfrs.	N/A	N/A
Baden Sports, Inc.	Kabushiki Kaisha Molten	2008-1216	556 F.3d 1300
Telecomm. Sys, Inc.	Mobile 365, Inc.	2009-1348	363 F. App'x 743
Allan Block Corp.	E. Dillon & Co.	2008-1014	287 F. App'x 109
Johns Hopkins Univ.	Datascope Corp.	2007-1530	543 F.3d 1342
Muniauction, Inc.	Thomson Corp.	2007-1485	532 F.3d 1318
MercExchange, LLC	eBay, Inc.	2007-1531	273 F. App'x 857
Diomed, Inc.	Angiodynamics, Inc.	2007-1475	310 F. App'x 366
Sanofi-Synthelabo	Apotex, Inc.	2007-1438	550 F.3d 1075
Commonwealth Sci. & Indus. Res. Org. (CSIRO)	Buffalo Tech. (USA), Inc.	2007-1449	542 F.3d 1363
Brooktrout, Inc.	Eicon Networks Corp.	2006-1288	253 F. App'x 25
Heuft Systemtechnik GmbH	Indus. Dynamics Co.	2007-1417	282 F. App'x 836
Lexion Med Inc.	Northgate Techs. Inc.	2007-1420	292 F. App'x 42
Informatica Corp.	Business Objects Data Integration, Inc.	2008-1123	299 F. App'x 965
Proveris Scientific Corp.	Innovasystems, Inc.	2007-1428	536 F.3d 1256
MGM Well Servs., Inc.	Mega Lift Sys., LLC	2007-1367	264 F. App'x 900

Plaintiff	**Defendant**	**Fed. Cir. Docket**	**Citation**
800 Adept, Inc.	Murex Securities, Ltd.	2007-1272	539 F.3d 1354
Praxair, Inc.	ATMI, Inc.	2007-1483	543 F.3d 1306
O2 Micro Int'l, Ltd.	Beyond Innovation Tech. Co.	2007-1302	521 F.3d 1351
Ortho-McNeil Pharm., Inc.	Mylan Labs Inc.	2007-1223	520 F.3d 1358
Amado	Microsoft Corp.	2007-1236	517 F.3d 1353
Verizon Servs. Corp.	Vonage Holdings Corp.	2007-1240	503 F.3d 1295
Atlanta Attachment Co.	Leggett & Platt, Inc.	2007-1188	516 F.3d 1361
Momentus Golf, Inc.	Swingrite Golf Corp.	N/A	N/A
Novozymes A/S	Genencor Int'l, Inc.	N/A	N/A
Genlyte Thomas Group LLC	Arch. Lighting Group	2007-1405	278 F. App'x 1004
MPT, Inc.	Marathon Labels, Inc.	2007-1183	258 F. App'x 318
Exergen Corp.	CVS Corp.	2006-1491	575 F.3d 1312
Innogenetics, N.V.	Abbott Labs.	2007-1145	512 F.3d 1363
IMX, Inc	LendingTree, Inc.	2007-1175	327 F. App'x 199
Transocean Offshore Deepwater Drilling, Inc.	GlobalSantaFe Corp.	N/A	N/A
Visto Corp.	Seven Networks, Inc.	2007-1155	N/A
Cybersettle, Inc.	Nat'l Arbitration Forum, Inc.	2007-1092	243 F. App'x 603
Black & Decker Inc.	Robert Bosch Tool Corp.	2007-1243	260 F. App'x 284
Color Kinetics, Inc.	Super Vision Int'l, Inc.	N/A	N/A
Omegaflex, Inc.	Parker Hannifin Corp.	2007-1044	243 F. App'x 592
Janssen Pharm.	Dr. Reddy's Laboratories	2007-1021	223 F. App'x 999
Rosco, Inc.	Mirror Lite Co.	2010-1086	394 Fed. App'x 714
Smith & Nephew, Inc.	Synthes (U.S.A.)	2007-1048	269 F. App'x 972

Plaintiff	**Defendant**	**Fed. Cir. Docket**	**Citation**
3M Innovative Properties Co.	Avery Dennison Corp.	2007-1040	N/A
Int'l Rectifier	IXYS Corp.	2007-1063	515 F.3d 1353
Voda	Cordis Corp.	2007-1297	536 F.3d 1311
Finisar Corp.	DirecTV Group Inc.	2007-1023	523 F.3d 1323
Pods, Inc.	Porta Stor, Inc.	2006-1504	484 F.3d 1359
Litecubes, LLC	Northern Light Prods., Inc.	2006-1646	523 F.3d 1353
TiVo	Echostar (Dish Network)	2006-1574	516 F.3d 1290
Paice LLC	Toyota Motor Corp.	2006-1610	504 F.3d 1293
Brinton	Loggans	2006-1611	214 F. App'x 984
Wald	Mudhopper Oilfield Servs., Inc.	N/A	N/A
z4	Microsoft Corp.	2006-1638	507 F.3d 1340
Edwards Lifesciences AG	CoreValve, Inc.	2011-1215	699 F.3d 1305