

Administering Patent Law

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ABSTRACT: Ten years ago, few people—with the exception of a handful of visionary academics—spent much time thinking about the significance of administrative law to the patent system. Today, administrative law issues pervade the patent system, from examiners and patent judges up to the United States Supreme Court. At the same time, modern administrative law itself faces a series of challenges that call into question its fundamental premises, such as the degree of deference that courts should grant agencies and the amount of political control that is constitutionally permissible or required. What does all this mean for the future of patent law?

Thanks to the support of the David F. Hellwege fund at the Iowa Law School Foundation, this Issue of the Iowa Law Review contains an amazing array of scholarship on these topics from some of today’s brightest and most prominent patent law thinkers.

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I. AN INTRODUCTION TO THE SYMPOSIUM ISSUE

The United States Patent and Trademark Office (“USPTO”) is one of the oldest administrative agencies in the country, tracing its origins back to the

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original three-member Patent Commission created by Congress in 1790.¹ The USPTO's existence, practices, and enabling statutes long predate the expansion of federal administrative agencies beginning in the 1880s, the Administrative Procedure Act of 1946 ("APA"), and the developments in federal administrative law over the past several decades.² Although nominally a part of the Department of Commerce, patent law—and the USPTO—largely seemed to play by its own rulebook.³

All that has changed in recent years. Administrative law—the constitutional, statutory, and precedent-based body of law relating to the procedures, authority, and judicial review of administrative agencies—is now a central component of patent law.⁴ It is nearly impossible to contextualize many recent and impending changes in patent law without a thorough understanding of how they relate to administrative law.⁵ Together, administrative law-based challenges to USPTO actions, the effects of the 2011 America Invents Act, and the Supreme Court's increased interest in patent law have created a new era of uncertainty and opportunity.

Even as its influence on the USPTO waxes, modern administrative law's underlying principles have come into question. Courts and scholars are questioning foundational beliefs of post-APA law, challenging the constitutionality of administrative judge independence, deference to agency interpretations of law, and the existing balance between due process, technical expertise, and political accountability.⁶

No one understands this dynamic as well as the scholars who stand with one foot in patent law and the other in administrative law. These scholars have studied, written, testified, and participated in the change to a new era of administering patent law. On October 5, 2018, the *Iowa Law Review* and the Iowa Innovation, Business and Law Center brought together an extraordinary group of these scholars to provide their insights into the USPTO's historical

1. Robert P. Merges, *The Hamiltonian Origins of the U.S. Patent System, and Why They Matter Today*, 104 IOWA L. REV. 2559, 2567–68 (2019).

2. *Id.* at 2562–78.

3. Christopher J. Walker & Melissa F. Wasserman, *The New World of Agency Adjudication*, 107 CALIF. L. REV. 141, 157–61 (2019).

4. *See, e.g.*, *Oil States Energy Servs., LLC v. Greene's Energy Grp., LLC*, 138 S. Ct. 1365, 1370–72 (2018); *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1352–54 (2018); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2136–38 (2016).

5. An example is provided by Chris Walker and Melissa Wasserman in their analysis of patent judges. *See* Walker & Wasserman, *supra* note 3, at 194–96.

6. *See id.* at 182–87. *See generally* John M. Golden, *PTO Panel Stacking: Unblessed by the Federal Circuit and Likely Unlawful*, 104 IOWA L. REV. 2447 (2019) (responding to the panel-staking controversy); Merges, *supra* note 1 (showing why the USPTO fits poorly with the contemporary Executive Branch); Adam Mossoff, *Statutes, Common Law Rights, and the Mistaken Classification of Patents as Public Rights*, 104 IOWA L. REV. 2591 (2019) (discussing the importance of distinguishing between public and private rights); Christopher J. Walker, *Constitutional Tensions in Agency Adjudication*, 104 IOWA L. REV. 2679 (2019) (examining constitutional tensions in agency adjudication).

relationship with administrative law, its place in the modern administrative state, and its future evolution.

This Issue of the *Iowa Law Review* contains the written contributions of these scholars, with ideas as diverse as the balance of power between court and agency,⁷ the role of estoppel in administrative *inter partes* review (“IPR”) procedures,⁸ constitutional restrictions on administrative innovations at the USPTO,⁹ and the effects of competing visions of what a patent is on institutional design of the USPTO’s administrative function.¹⁰ Other contributors offer empirical scholarship providing information about changes in examiner behavior in response to review,¹¹ the emergence of an elite patent bar,¹² and the types of prior art considered in IPR.¹³ Perhaps the most far-looking contributions are Professor Colleen Chien’s proposal for administrative experiments¹⁴ and Professor Arti Rai’s discussion of artificial intelligence in the patent office.¹⁵

II. JUDICIAL REVIEW METRICS TO FRAME THE DISCUSSION

As one way of framing this discussion, this Essay provides some jurisprudential context for the USPTO: specifically, to situate the Patent Trial and Appeal Board (“PTAB”) with respect to its primary reviewing Article III court, the Court of Appeals for the Federal Circuit. The following data draws primarily from *The Compendium of Federal Circuit Decisions* (“*Compendium*”), a comprehensive database of all documents in appeals arising from the USPTO and District Courts released on the Federal Circuit’s website, to provide useful and relevant quantitative data about the court’s review of the PTAB.¹⁶ Details

7. See generally John F. Duffy, *Reasoned Decisionmaking vs. Rational Ignorance at the Patent Office*, 104 IOWA L. REV. 2351 (2019) (arguing that agencies should use reasoned decisionmaking); Rebecca S. Eisenberg, *A Functional Approach to Judicial Review of PTAB Rulings on Mixed Questions of Law and Fact*, 104 IOWA L. REV. 2387 (2019) (examining the proper scope of judicial review of PTAB rulings); Sapna Kumar, *Patent Court Specialization*, 104 IOWA L. REV. 2511 (2019) (examining problems with the Federal Circuit’s specialization).

8. See generally Saurabh Vishnubhakat, *Renewed Efficiency in Administrative Patent Revocation*, 104 IOWA L. REV. 2643 (2019).

9. See generally Golden, *supra* note 6; Merges, *supra* note 1; Mossoff, *supra* note 6; Walker, *supra* note 6.

10. See Jonathan S. Masur, *Institutional Design and the Nature of Patents*, 104 IOWA L. REV. 2535 (2019) (describing the debate regarding whether a patent is property or a license).

11. See generally Michael D. Frakes & Melissa F. Wasserman, *Patent Trial and Appeal Board’s Consistency-Enhancing Function*, 104 IOWA L. REV. 2417 (2019).

12. See generally Paul R. Gugliuzza, *Elite Patent Law*, 104 IOWA L. REV. 2481 (2019).

13. See generally Stephen Yelder, *Prior Art in Inter Partes Review*, 104 IOWA L. REV. 2705 (2019).

14. See generally Colleen V. Chien, *Rigorous Policy Pilots: Experimentation in the Administration of the Law*, 104 IOWA L. REV. 2313 (2019).

15. See generally Arti K. Rai, *Machine Learning at the Patent Office: Lessons for Patents and Administrative Law*, 104 IOWA L. REV. 2617 (2019).

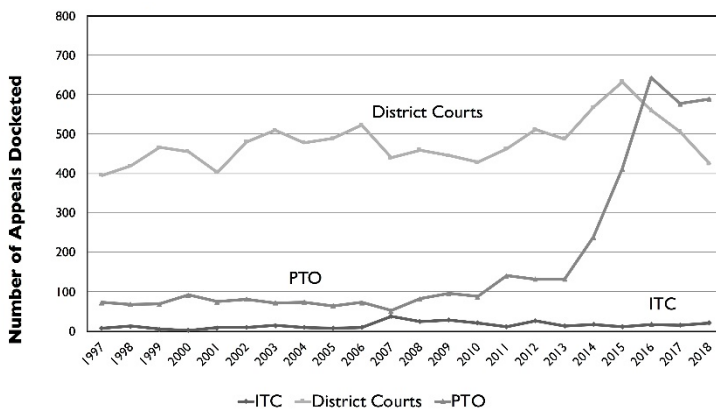
16. *The Compendium of Federal Circuit Decisions*, FED. CIR. DECISIONS DATABASE, <https://fedcircuit.shinyapps.io/federalcompendium> (last visited May 20, 2019) [hereinafter *The*

about the construction and contents of the *Compendium* can be found in an earlier article, *The Landscape of Modern Patent Appeals*.¹⁷

A. *THE SHIFT FROM REVIEW OF DISTRICT COURTS TO REVIEW OF AN ADMINISTRATIVE AGENCY*

A starting point that is dramatic, yet surprising to no one, is the tremendous increase in appeals to the Federal Circuit arising from the USPTO. As Figure 1 depicts, the number of appeals filed with the Federal Circuit that arise from the USPTO grew by a factor of six in under a decade—from under 100 in 2010 to over 600 in 2016, even as the number of appeals from the district courts has fallen.¹⁸ While that explosive growth in appeals has leveled off over the last two years, it remains close to 600 appeals per year.¹⁹

Figure 1. Appeals Docketed at the Federal Circuit per Fiscal Year, 1997 to 2018



This growth in appeals has produced an equally sharp rise in the number of Federal Circuit *decisions* in appeals arising from the USPTO—so much so that decisions in appeals from the USPTO now exceed those in appeals arising from the district courts. This is a dramatic shift from just a few years ago, in which the bulk of the Federal Circuit’s patent-related decisions arose from

Compendium]. For discussion of the methodology and contents of the *Compendium*, see *The Compendium of Federal Circuit Decisions*, FED. CIR. DATA PROJECT, UNIV. OF IOWA, <https://empirical.law.uiowa.edu/compendium-federal-circuit-decisions> (last visited May 20, 2019).

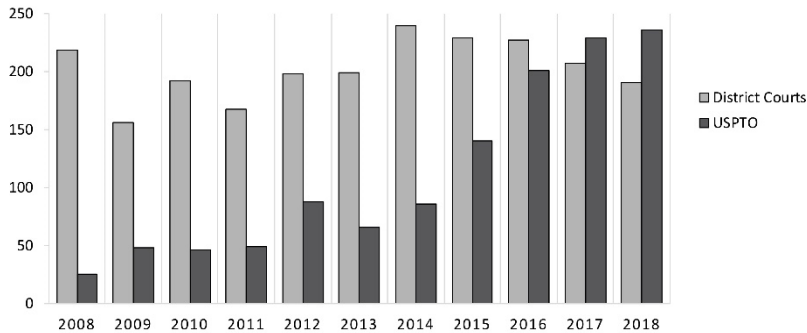
17. Jason Rantanen, *The Landscape of Modern Patent Appeals*, 67 AM. U. L. REV. 985, 997–1005 (2018).

18. *Id.* at 992; *Statistics*, U.S. COURT APPEALS FED. CIR., <http://www.cafc.uscourts.gov/the-court/statistics> (last visited May 20, 2019) (providing Federal Circuit statistics data from CAFC website).

19. *Statistics*, *supra* note 18.

infringement proceedings, not administrative proceedings before the USPTO.²⁰

Figure 2. Federal Circuit Opinions and Rule 36 Affirmances in Appeals Arising from the USPTO (2008–2018)



This change means that now, more than ever before, the Federal Circuit resembles, as Professor Sapna Kumar observes in this Issue, a specialized court.²¹ But it also means that the patent-related workload of today's Federal Circuit largely involves the types of legal issues that specifically arise in these disputes: essentially, large quantities of § 102 and § 103 novelty and nonobviousness questions, as opposed to the more varied legal issues that might arise in the context of an infringement proceeding.²²

B. DENIALS OF PATENT APPLICATIONS: RARE DECISIONS THAT USUALLY AFFIRM

A deeper dive into the decisions in appeals arising from the USPTO reveals that, historically, the bulk primarily involve patents rather than the trademarks. As Figure 3 shows, the vast majority of Federal Circuit decisions in appeals arising from the USPTO come from procedural contexts involving the PTAB (or its predecessor, the Board of Patent Appeals and Interferences) rather than the Trademark Trial and Appeal Board. Another observation is that, prior to around 2013 and 2014, most opinions arising from the USPTO involved rejections of patent applications.²³ Historically, about 15 to 20 decisions per year have involved rejections of patent applications—a small percentage of the court's overall opinions.²⁴

20. *Id.*

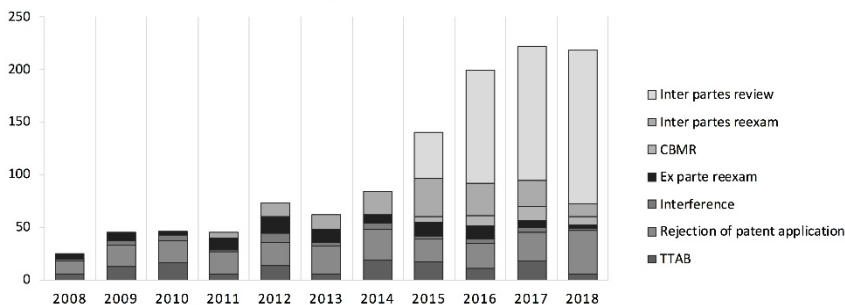
21. Kumar, *supra* note 7, at 2517–19.

22. 35 U.S.C. § 311 (2012); Eisenberg, *supra* note 7, at 2390–91; *see also* Kumar, *supra* note 7, at 2526–28.

23. *See* Figure 3 *infra* Section II.B.

24. *See* Figure 3 *infra* Section II.B.

Figure 3. Federal Circuit Opinions and Rule 36 Affirmances in Appeals Arising from the USPTO (2008–2018)



Beginning in 2011, however, that balance shifted—first to inter partes reexaminations, and then to IPR proceedings. As Figure 3 demonstrates, much of the growth in the court’s decisions from 2012 to 2015 was attributable to appeals from inter partes reexaminations. Only in 2015 did the Federal Circuit issue its first decision reviewing an IPR. Appeals involving other issues—such as ex parte reexaminations, covered business method review, and interferences—represent only a small portion of the patent-related decisions the Federal Circuit issues. These data illustrate another major change in the Federal Circuit docket related to appeals from the USPTO, from predominantly denials of patent applications to predominantly IPR proceedings.

Despite historically constituting the lion’s share of the Federal Circuit’s decisions in appeals arising from the USPTO, the court’s decisions involving examiner rejections of patent constitute review of just a tiny fraction of the decisions made by the USPTO. Any challenge to examiner rejections first go through an appeal to the PTAB, which itself affirms examiners in full or in part about 55 to 60 percent of the time;²⁵ of these, only a tiny number are appealed to the Federal Circuit.²⁶ So much so that a graph of comparing the PTAB’s decisions in appeals arising from denials of patent applications to the Federal Circuit’s decisions on that topic would be an exercise in futility. The PTAB makes about 10–15,000 decisions a year in this type of dispute;²⁷ the

25. *Ex Parte Appeal Statistics*, U.S. PATENT & TRADEMARK OFFICE, <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/ptab-statistics-receipts-and-dispositions> (last visited May 20, 2019) (reporting a 59.8% affirmed rate for FY 2018 and a 56.7% affirmed rate for 2019 as of the end of February).

26. Note, also, that denials of patent applications may be appealed to the Eastern District of Virginia. 35 U.S.C. § 145.

27. U.S. PATENT & TRADEMARK OFFICE, PERFORMANCE & ACCOUNTABILITY REPORT: FISCAL YEAR 2018, at 191 (2018) [hereinafter USPTO PAR 2018], available at <https://www.uspto.gov/sites/default/files/documents/USPTOFY18PAR.pdf>. These are, as I understand the report, almost entirely appeals from examiner rejections of patent claims.

Federal Circuit issues about 15 to 20.²⁸ In other words, the number of Federal Circuit decisions involving an appeal of a denial of a patent application have historically been about 0.2%, on average, of the decisions made by the PTAB. In short, it is extraordinarily rare that the Federal Circuit will actually decide a case in which an applicant was dissatisfied.

What ultimately happens in these decisions? Mostly, they are affirmed: 80% and up, on an annual basis, of USPTO rejections of patent applications are affirmed in full by the Federal Circuit.²⁹

This observation of rare appeals and uncommon reversals is consistent with the work of Melissa Wasserman, Michael Frakes, and Jonathan Masur in the early 2010s.³⁰ Masur's *Patent Inflation*, for example, staked out the theory that the USPTO generally prefers not to make decisions that will result in appeals to the Federal Circuit, and so will err on the side of making decisions that result in preventing those appeals—that is, being relatively conservative in allowing patents as opposed to rejecting applications.³¹ These data may reflect a USPTO that errs on the side of allowing patents, with the result that in the rare occasion when a rejection by the PTAB is appealed, it tends to be affirmed.³²

C. INTER PARTES REVIEWS: THE NEW KID ON THE BLOCK

Since Masur wrote *Patent Inflation* and Frakes & Wasserman wrote *Does the Patent Office Grant Too Many Patents*, however, a completely new creature has entered the stage: IPRs, which many of the contributors discuss in depth.³³ Here, the story is quite different. Both the number of final written decisions by the PTAB in IPRs and the number of Federal Circuit decisions involving IPRs, fit on the same scale.³⁴ Overall, the Federal Circuit is deciding a much larger proportion of IPRs relative to the decisions being made by the PTAB—it's not even remotely comparable to the court's review of rejections of patent applications.

28. Data from *The Compendium*, *supra* note 16; *see also* Rantanen, *supra* note 17, at 992.

29. *See* Figure 5 *infra* Section II.C.

30. Michael D. Frakes & Melissa F. Wasserman, *Does the U.S. Patent and Trademark Office Grant Too Many Bad Patents?: Evidence From a Quasi-Experiment*, 67 STAN. L. REV. 613, 628 (2015); Jonathan Masur, *Patent Inflation*, 121 YALE L.J. 470, 506–10 (2011).

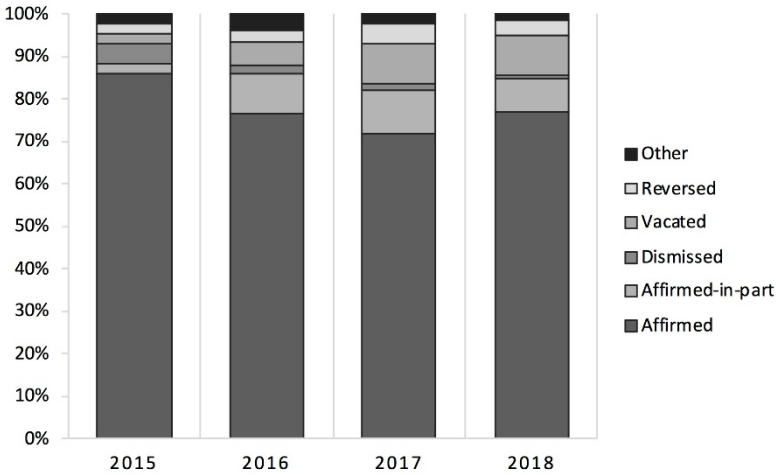
31. Masur, *supra* note 30, at 505.

32. Of course, selection looms large here: Of the roughly 7–10,000 affirmance of an examiner's decision to reject an application that are affirmed by the PTAB, only a tiny number ultimately result in a decision.

33. *See generally* Frakes & Wasserman, *supra* note 11; Walker, *supra* note 6; Yelderman, *supra* note 13.

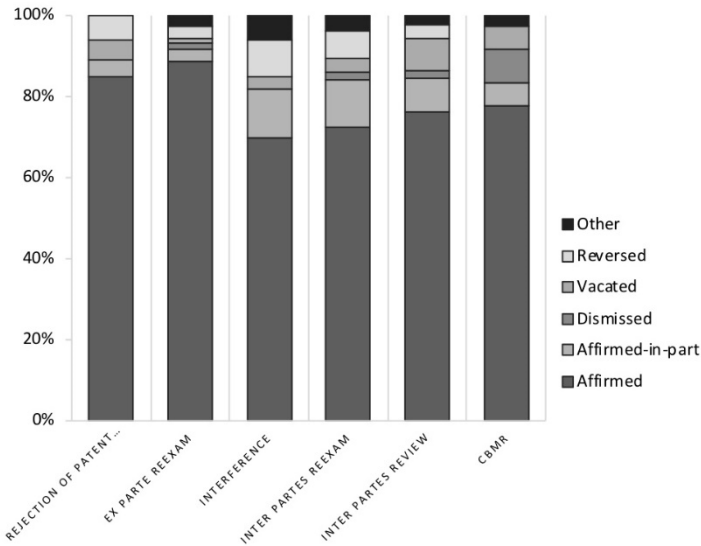
34. *See* USPTO PAR 2018, *supra* note 27, at 191, 203. Again, with the caution of the approximately 14-month lag period.

Figure 4. Federal Circuit Review of PTAB—Inter Partes Review Only



What happens to *these* disputes? The Federal Circuit still affirms many of them, but the overall affirmance rate is noticeably lower than it is for affirmances of the PTAB in rejections of patent applications—especially when you discount 2015 due to some small sample size issues. Figure 5 shows the affirmance rate for different types of appeals for a four-year period, from 2012 to 2016.

Figure 5. Federal Circuit Review (2012–2018)



This difference appears to reflect a broader trend of the Federal Circuit tending to affirm certain kinds of appeals at a higher rate than others. In particular, rejections of patent applications and *ex parte* reexaminations are being affirmed at a noticeably higher rate than interferences, *inter partes* reexaminations and reviews, and covered business method reviews.

While hypothesizing on causality in affirmance rates is fraught with peril,³⁵ one possible explanation is the intermediate filter, similar to the idea that Frakes & Wasserman discuss in this Issue.³⁶ The decisions on the right side of Figure 5 have already gone through the filter of an appeal process—with the PTAB functioning as an appellate body—and so are less likely to contain error that the Federal Circuit will need to reverse. The other set of decisions—again, interferences, *inter partes* reexamination, IPR, and covered business method review—are all proceedings that really just involve one level of administrative decision-making at the USPTO. In these cases, the PTAB functions as a trial court that is then appealed to the Federal Circuit with no real intervening review (excluding the rare instance where a rehearing is granted). The lack of a filter means that there's more chance of error, and thus more chance of being reversed by the Federal Circuit.

Another possible explanation is that, as Masur and Wasserman discussed in 2011, the PTAB's bias may be in favor of avoiding an appeal, and thus when it errs in this set, it errs in favor of the applicant.³⁷ Put another way, the squeaky wheel never gets a chance to squeak. Those appeals that are filed are mostly applicants for whom the PTAB almost certainly got it right. It is harder for the PTAB to avoid squeaky wheels in the *inter partes* proceedings because there will always be a loser no matter what the USPTO does, and thus there will be someone to appeal. The PTAB cannot take such a cautious approach with these decisions.

A final observation that the *Compendium* data allows on Federal Circuit review of IPR procedures is that the rate at which the Federal Circuit has affirmed-in-full decisions by the PTAB in IPR proceedings has dropped since the court began issuing its first decisions in these appeals, as shown in Figure 4. This is an early stage trend, but one worth keeping an eye on.

* * *

This overview paints with a broad brush and does little to capture the nuances of what is happening at the patent office, the relationship between the Federal Circuit and the administrative agency, or how deep threads of administrative law matter to the fabric of patents and the patent system.

35. Jason Rantanen, *Empirical Analyses of Judicial Opinions: Methodology, Metrics, and the Federal Circuit*, 49 CONN. L. REV. 227, 248–49 (2016).

36. See generally Frakes & Wasserman, *supra* note 11.

37. Masur, *supra* note 30, at 505; Melissa F. Wasserman, *The PTO's Asymmetric Incentives: Pressure to Expand Substantive Patent Law*, 72 OHIO ST. L.J. 379 (2011).

Fortunately, the symposium contributors have brought all that to the table (and more). Rebecca Eisenberg's contribution, in particular, focuses on the vexing problem of judicial review of mixed questions of law and fact, suggesting that a *functional* approach focusing on the nature of the inquiry, the comparative advantages of the lower tribunal and the reviewing court in performing that function, and the specificity or generalizability of the ruling, without assigning talismanic significance to the labels "law" or "fact."³⁸ This approach offers a new way to think about both how the court is really conducting judicial review and how its implicit practices might be made clearer and more transparent by formally acknowledging that practice.

Professor Eisenberg's contribution is one of many excellent Essays. This Symposium Issue of the *Iowa Law Review* is a treasure trove of useful insights into the relationship between administrative law and the patent system. I hope you enjoy reading the contributions as much as I have, and that they help you better understand this complex intersection between patent law and administrative law.

38. See generally Eisenberg, *supra* note 7.

Table 1. Appeals Docketed at the Federal Circuit per Fiscal Year,
1997–2018³⁹

Year	ITC	District Courts	PTO
1997	7	395	72
1998	12	419	68
1999	5	466	69
2000	2	455	91
2001	8	403	74
2002	9	480	81
2003	14	509	71
2004	9	478	73
2005	7	488	64
2006	9	522	72
2007	38	439	52
2008	24	459	82
2009	28	445	95
2010	21	428	87
2011	11	462	140
2012	26	511	132
2013	13	487	132
2014	17	567	238
2015	11	632	411
2016	17	561	642
2017	15	506	577
2018	21	424	589

39. *Statistics, supra* note 18.

Table 2. Federal Circuit Decisions in Appeals Arising from the USPTO and District Courts

Year	District Courts	USPTO
2008	218	25
2009	156	48
2010	192	46
2011	167	49
2012	198	88
2013	199	66
2014	239	86
2015	229	140
2016	227	201
2017	207	229
2018	190	236

Table 3. Federal Circuit Opinions and Rule 36 Affirmances in Appeals Arising from the USPTO (2008–2018)

Year	CBMR	Rejection of patent application	Ex parte reexam	Inter partes review	Inter partes reexam	Interference	Other	Post-grant review	Total	TTAB	Total with appeals from
2008	0	12	5	0	0	2	0	0	19	6	25
2009	0	20	8	0	0	4	3	0	35	13	48
2010	0	21	3	0	0	6	0	0	30	16	46
2011	0	21	11	0	5	2	4	0	43	6	49
2012	0	22	16	0	13	8	6	0	65	14	79
2013	0	26	12	0	14	4	0	0	56	6	62
2014	0	29	8	0	22	6	2	0	67	19	86
2015	5	22	13	44	36	3	2	0	125	17	142
2016	10	24	12	107	31	4	2	0	190	11	201
2017	13	27	7	128	24	5	2	0	206	18	224
2018	8	41	3	146	12	2	0	2	214	6	220

Table 4. Federal Circuit Review of PTAB: Inter Partes Review Only (2015–2018)

Year	Affirmed	Affirmed-in-part	Dismissed	Other	Reversed	Vacated	Total
2015	37	1	2	1	1	1	43
2016	82	10	2	4	3	6	107
2017	92	13	2	3	6	12	128
2018	111	11	1	2	5	14	144

Table 5. Federal Circuit Review of PTAB Decisions (2012–2018)

	Affirmed	Affirmed-in-part	Dismissed	Other	Reversed	Vacated	Total
Rejection of patent application	162	8	0	0	12	9	191
Ex parte reexam	63	2	1	2	2	1	71
Interference	23	4	0	2	3	1	33
Inter partes reexam	109	18	3	6	10	5	151
Inter partes review	322	35	7	10	15	33	425
CBMR	28	2	3	1	0	2	36
Other	9	0	0	3	1	1	14
Total	716	69	14	24	43	33	899
Inter partes	482	59	13	19	28	22	623
Ex parte	225	10	1	2	14	10	262