

## AN EMPIRICAL STUDY OF THE EFFECT OF KSR V. TELEFLEX ON THE FEDERAL CIRCUIT'S PATENT VALIDITY JURISPRUDENCE

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### ABSTRACT

*This article presents a novel empirical study that argues the Supreme Court's decision in KSR v. Teleflex has had a significant effect on the law of obviousness. The results presented here suggest that after KSR both the Federal Circuit and the District Courts are more likely to render patents invalid as obvious. This showing contradicts a commonly held belief that KSR did not change the law of obviousness significantly. Next, the study reveals that the effect of KSR is not necessarily connected to the text of the Supreme Court's opinion. Rather, the Federal Circuit reacted to the Supreme Court's granting of cert to KSR by invalidating a relatively high percentage of patents—both for obviousness and anticipation—during the period in which KSR was pending before the Supreme Court. Together, the results of the study signify the positive fact that the Federal Circuit is aware of and sensitive to criticism by members of the patent bar and academia. But the results also cast doubt on whether the text of judicial opinions is a reliable source of figuring out what the law truly is.*

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## I. INTRODUCTION

This article offers novel empirical data and analyses aimed at shining a practical light on an otherwise theoretical and philosophical debate about the non-obviousness doctrine in particular and patent invalidity in general. Nonetheless, the implications of the information uncovered through the study presented here extend beyond the laws that govern the patent system and reach to offer important—and perhaps disturbing—insight into how judges decide cases overall.

The basic approach of the study is straightforward. The author surveyed a large number of cases decided by the Federal Circuit and certain District Courts before and after the Supreme Court decided *KSR v. Teleflex*<sup>2</sup> in order to evaluate the actual effect and implications of *KSR* on different aspects of patent law. Based on how cases were decided in three distinct periods—before the Supreme Court granted certiorari (“cert.”) to *KSR*, after the Supreme Court decided *KSR*, and the period in between—this comment tests if and how *KSR* changed the landscape of the patent obviousness doctrine.

The results of this study point at three distinct and surprising conclusions. First, despite the commonly held belief that *KSR* was inconsequential or of little doctrinal effect on the law of obviousness, the Federal Circuit and the District Courts studied are much more willing to find patent claims obvious after *KSR*.<sup>3</sup> Second, there is a strong likelihood that the effect of *KSR* on the Federal Circuit’s obviousness jurisprudence is unrelated to the text of the *KSR* opinion and what the Supreme Court had to say about the law of obviousness.<sup>4</sup> Third, statistically speaking, the Federal Circuit in particular and judges in general may be surprisingly sensitive to criticism coming from the practicing bar and academia.<sup>5</sup>

The rest of this article is organized as follows. Section II provides background on the law of obviousness, underlines the importance of the doctrine, and discusses commonly held beliefs about the effect of the *KSR* decision on the law of obviousness. Section III explains the formulation and the methodology of this study to enable better understanding of the results and to allow

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<sup>2</sup> *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007); see also *infra* Part III.A–C.

<sup>3</sup> *Infra* Part IV.

<sup>4</sup> *Infra* Part IV.B.

<sup>5</sup> *Infra* Part IV.D.

re-creation and verification of the study and its results. It also discusses the possible shortcomings of the study to mark its limitations. In section IV, the article reports the results of the study and analyzes the uncovered trends. Section V concludes the article.

## II. BACKGROUND

### A. *Non-Obviousness: An Important Indicator of Where the Patentability Bar Rests*

To be patentable, a claimed invention must be new, useful, and non-obvious.<sup>6</sup> Out of these three requirements, however, non-obviousness receives the most attention from patent law scholars and the courts.<sup>7</sup> The importance of the non-obviousness doctrine derives partly from the unimportance of the other two requirements: novelty and usefulness, while formally required of a patentable invention, are much easier to satisfy compared to non-obviousness.<sup>8</sup> Insignificant changes to prior art are nevertheless “new,” and the utility bar to patentability is set “rather low.”<sup>9</sup>

Non-obviousness, on the other hand, is an important hurdle to overcome for the inventor. The inquiry—whether a discovery is obvious to a person having ordinary skill in the relevant art—is complex mainly because obviousness deals with the technical, not economical, significance of inventions.<sup>10</sup> An invention which is hugely profitable may nevertheless be technically insignificant and hence unworthy of a patent.<sup>11</sup> This makes sense, since

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<sup>6</sup> 35 U.S.C. §§ 101–03 (2009); *see also* *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150–51 (1989) (“The applicant whose invention satisfies the requirements of novelty, nonobviousness, and utility . . . is granted . . . the exclusive right to practice the invention for a period of years.”).

<sup>7</sup> *Infra* Part II.B.

<sup>8</sup> ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 612 (4th ed. 2007).

<sup>9</sup> Jennifer Gordon & Brian D. Coggio, *Overview of Patent Litigation*, in *WHAT EVERY LITIGATOR MUST KNOW ABOUT INTELLECTUAL PROPERTY* 281, 325–26 (Practicing Law Institute 2004).

<sup>10</sup> MERGES, *supra* note 8, at 614–15; *see also* Karen I. Boyd, *Nonobviousness and the Biotechnology Industry: A Proposal for a Doctrine of Economic Nonobviousness*, 12 *BERKELEY TECH. L.J.* 311, 337–43 (1997) (proposing that, with regards to biotechnology, the obviousness doctrine should take into account economic factors in addition to technical considerations).

<sup>11</sup> Of course, one would intuit that this scenario rarely happens in real life. We expect highly profitable discoveries to be non-obvious, because had they been obvious, they would have usually been already implemented. It is at least

award of exclusive rights over an invention to the patentee is largely justified based on the incentive the award will provide for inventors to “promote the Progress of Science and useful Arts,”<sup>12</sup> rather than how useful the patent may be to the patent applicant. A patent that is technically insignificant does not add to the collective knowledge of society,<sup>13</sup> and regardless of its profitability, does not deserve protection.

That obviousness measures the technical significance of a discovery makes the non-obviousness doctrine important in at least two ways. First, the non-obviousness doctrine serves as a gateway that screens what society values as a significant advance in sciences or arts from what it deems a trivial permutation of the already known.<sup>14</sup> What the courts deem non-obvious and how much technical advancement an inventor needs to achieve before a patent may be issued, therefore, reflect what society as a whole finds an acceptable contribution to justify a patent.<sup>15</sup> The non-obviousness bar, hence, is a measure of what we, as a society, accept as a valuable discovery.

Second, since obviousness is about the technical significance of

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for this reason, therefore, that courts look to economic profitability of a discovery as a factor in deciding whether an invention is obvious. As will be discussed below, however, the inquiry is only “secondary” to the core of obviousness analysis. *See infra* Part II.B.

<sup>12</sup> U.S. CONST. art. I, § 8, cl. 8. “The Congress shall have Power . . . [t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . .” *Id.*

<sup>13</sup> This article assumes that the public good is achieved by awarding patents to technical innovations, regardless of their economic profitability. One may argue that the mere discovery of an obvious advancement that is economically profitable is in itself highly valuable, not just to the “inventor” but also to society as a whole. The basic principle of the non-obviousness doctrine, however, is based on the assumption that society need only grant exclusive rights to an invention to one who has truly discovered something new in the technical sense. The philosophical debate over whether this assumption is true is beyond the scope of this article. This article deals with patterns of non-obviousness rulings; the results will hopefully illuminate the debate on obviousness, regardless of the underlying theories that gave rise to the non-obviousness standard. Hence, the assumption that nonobviousness is a sound doctrine does not have much bearing on the result of this study and should not introduce any bias for the same reason.

<sup>14</sup> MERGES, *supra* note 8, at 612.

<sup>15</sup> Gregory Mandel, *The Non-Obvious Problem: How the Indeterminate Nonobviousness Standard Produces Excessive Patent Grants*, 42 U.C. DAVIS L. REV. 57, 62 (2008) (noting “[t]he nonobviousness requirement protects society against the social costs both of denying a deserving patent and of granting an undeserving monopoly.”).

a discovery, its determination is technical in nature. In deciding whether a claimed invention is technically obvious, courts and litigants have to delve into highly technical analyses and compare the state of the art before and at the time of the claimed invention. In the United States patent system, unlike some other patent systems such as that in Great Britain, patent validity disputes are initially resolved in district courts of general jurisdiction.<sup>16</sup> Consequently, district court judges, many of whom have no knowledge or training in a particular field of technology, are often called on to make highly specialized rulings; for example, whether a certain recombinant DNA synthesis process was obvious to a person with ordinary skills in the field at the time it was made in light of another similar process formerly disclosed.<sup>17</sup>

The combination of these two principles—that obviousness is a telling measure of what we choose to reward with a patent, and that the obviousness inquiry is highly specialized—makes it crucial for the higher courts to hand down clear, intelligible, and easy to apply standards for measuring obviousness. A standard that is clear and easy to apply consistently will mark where the non-obviousness bar exactly rests, providing society as a whole, and lawmakers in particular, with a benchmark to gauge the patent system's efficacy. Moreover, such a standard will allow the lower courts to determine non-obviousness correctly and consistently, at least hypothetically reducing uncertainty, inducing uniformity, and lowering reversal odds. As the history of the non-obviousness doctrine reveals, however, that is much easier said than done.

### *B. History of the Non-Obviousness: A Doctrine Under Attack*

As far back as 1850, the Supreme Court had created a concept, which would gradually evolve into the non-obviousness

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<sup>16</sup> LeRoy L. Kondo, *Untangling the Tangled Web: Federal Court Reform Through Specialization for Internet Law and Other Technology Cases*, 2002 UCLA J.L. & TECH. 1 (2002).

<sup>17</sup> See, e.g., *In re Recombinant DNA Tech. Patent & Contract Litig.*, IP-92-0224-C, 1993 U.S. Dist. LEXIS 20474, at \*13, 15 (S.D. Ind. Dec. 22, 1993) (stating that information stated in the prior art reference cannot be common knowledge to a person of ordinary skill); see also posting of Kevin E. Noonan to PatentDocs, <http://www.patentdocs.org/2009/04/the-nonobviousness-of-dna.html> (Apr. 13, 2009, 11:19) (noting prior difficulties of judges in comprehending complex claims regarding science).

requirement.<sup>18</sup> Yet the term “obvious” did not appear in the patent statute until the Patent Act of 1952 (“the 1952 Act”).<sup>19</sup> It then took the Supreme Court fourteen more years to first address the 1952 Act’s non-obviousness requirement in *Graham v. John Deere Co.*<sup>20</sup> There, the Supreme Court held that the 1952 Act did not constitute a change in patentability requirements; rather, the Act was merely a codification of pre-existing law.<sup>21</sup> *Graham* held—or reiterated as the Court had already held prior to the 1952 Act—that obviousness is a question of law. Nonetheless, the Court acknowledged that non-obviousness “lends itself to several basic factual inquiries.”<sup>22</sup> In order to help lower courts achieve consistency in measuring non-obviousness as a matter of law, the Court prescribed a three part test, with particular attention to facts the lower courts should evaluate in making section 103 validity determinations.<sup>23</sup>

The three-step *Graham* test seems simple enough at first glance. First, the judge must determine the scope and content of prior art.<sup>24</sup> Second, the judge must compare the claimed invention to the scope and content of prior art and determine how

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<sup>18</sup> *Hotchkiss v. Greenwood*, 52 U.S. 248, 252–54 (1850). In *Hotchkiss*, a claimed invention comprised door knobs made from clay. *Id.* at 248–49. The knobs were similar to previously disclosed door knobs made out of metal in their structure. *Id.* at 252. The only difference was the use of clay instead of metal. Apparently, the substitution made the knobs “better and cheaper.” *Id.* at 252, 266. Nevertheless, the Supreme Court held that the substitution was only a formal change, “destitute of ingenuity or invention.” *Id.* at 266. In other words, although the clay door knobs were new (from a new material not previously disclosed) and useful (“better and cheaper”), the substitution of one material for the other did not constitute a significant technical advancement; the invention was obvious.

<sup>19</sup> N. Scott Pierce, *Common Sense: Treating Statutory Non-obviousness as a Novelty Issue*, 25 SANTA CLARA COMPUTER & HIGH TECH L.J. 539 (2009). Currently, non-obviousness is codified in 35 U.S.C. § 103 (2006) (“A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”).

<sup>20</sup> 383 U.S. 1, 3 (1966). *Graham* is recognized as the “starting point for all contemporary discussion” of non-obviousness. MERGES, *supra* note 8 at 631. This book focuses on trends in modern obviousness decisions.

<sup>21</sup> *Graham*, 383 U.S. at 12, 17.

<sup>22</sup> *Id.* at 17.

<sup>23</sup> *Id.* The language of the opinion somewhat suggested that despite their three part test prescription, the Court did not have much hope in the uniform application of the non-obviousness test: “What is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context.” *Id.* at 18.

<sup>24</sup> *Id.* at 17.

they differ.<sup>25</sup> Finally, the court must determine whether changes to prior art—determined in the first two steps of the test—would have been obvious to one with ordinary skills in the art.<sup>26</sup>

In addition to the three-step inquiry, the Supreme Court instructed lower courts to look at a series of secondary factors such as “commercial success, long felt but unsolved needs, failure of others [to achieve the claimed advancement], etc.”<sup>27</sup> Although not rigidly part of the three-step-test, these “secondary considerations” were meant to guide the lower courts in resolving obviousness disputes.<sup>28</sup> For example, evidence indicating that the claimed discovery came about in the face of long-felt need for the invention and that it achieved superb economic success shows that the discovery was most likely non-obvious; otherwise, somebody else would have come up with the “invention” in the past.

The law of obviousness remained basically unchanged after *Graham*<sup>29</sup> until Congress instituted the Federal Circuit Court of Appeals in 1982, giving that court exclusive subject matter jurisdiction over all patent disputes.<sup>30</sup> The move came in part as a response to difficulties that arose from disparities in interpretations of patent laws in different appellate circuits around the country, which made enforcing nation-wide patent rights a multi-jurisdictional puzzle.<sup>31</sup> The goal of focusing

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<sup>25</sup> *Id.*

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Id.* at 17–18.

<sup>29</sup> The Supreme Court decided three more non-obviousness cases between 1966 and 1982, and in all three it insisted on the *Graham* test as the proper framework for non-obviousness determinations. See *Anderson’s-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 61–62 (1969); *Dann v. Johnston*, 425 U.S. 219, 226 (1976); *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 279–80 (1976).

<sup>30</sup> *Christianson v. Colt Indus. Operating Corp.*, 486 U.S. 800, 820 (1988) (Stevens, J., concurring); 28 U.S.C. § 1295 (2006); 28 U.S.C. § 1338 (2006). A minor number of cases involving patent law disputes, such as cases in which the patent law question is raised for the first time as a counterclaim, are excluded from the Federal Circuit’s jurisdiction. See *Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826, 829, 832–33 (2002).

<sup>31</sup> See *Christianson*, 486 U.S. at 820.

When Congress passed the Federal Courts Improvement Act in 1982 and vested exclusive jurisdiction in the Court of Appeals for the Federal Circuit to resolve appeals of claims that had arisen under the patent laws in the federal district courts, it was responding to concerns about both the lack of uniformity in federal appellate construction of the patent laws and the forum-shopping that such divergent appellate views had generated.

*Id.*

jurisdiction in one appellate court was to promote uniformity and predictability in patent law.<sup>32</sup>

The Federal Circuit continued to rely on *Graham* as the binding authority. Yet, in order to help the lower courts apply the *Graham* test with more accuracy, the Federal Circuit developed a methodical approach to the question of obviousness, which became known as the “teaching, suggestion, or motivation” test (TSM test) . . . .<sup>33</sup> The crux of the TSM test is that obviousness is measured at the time of the invention, with a look back toward what existed before.<sup>34</sup> Arguably quite consistent with the *Graham* test, the TSM test assumes that an invention was obvious if something in the prior art taught, suggested, or motivated one with ordinary skills in the art to come up with the claimed invention.<sup>35</sup> If at the time of the invention, one with ordinary skills in the art would find all he needed (teaching, suggestion, or motivation) to discover the claimed invention, then what is claimed is not the result of ingenious creation, but of astute observation and montage.

Over the years, however, the TSM test generated concerns. A considerable number of complaints alleged that the TSM test made it too easy for patents to be found non-obvious.<sup>36</sup> The

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<sup>32</sup> See ROBERT L. HARMON, PATENTS AND THE FEDERAL CIRCUIT 1162 (8th ed. 2007).

The Federal Circuit was created, in part, for the purpose of achieving uniformity in the exposition and application of substantive patent law. In creating the Federal Circuit, congressional emphasis was on the need for greater uniformity in patent law and for freeing the judicial process from the forum shopping caused by conflicting patent decisions of the regional circuits. (citations omitted).

*Id.*

<sup>33</sup> *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 407 (2007). One of the earliest opinions of the Federal Circuit that alludes to the TSM test is *In re Donohue*, 766 F.2d 531, 533–34 (Fed. Cir. 1985) (citing *In re Samour*, 571 F.2d 559, 563 (C.C.P.A. 1978)). *In re Samour* predates the formation of the Federal Circuit.

<sup>34</sup> See *In re Kahn*, 441 F.3d 977, 987 (Fed. Cir. 2006) (“[The TSM] test begins the inquiry into whether a skilled artisan would have been motivated to combine references by defining the prior art relevant for the obviousness determination, and that it is meant to defend against hindsight.”).

<sup>35</sup> *Id.* at 988; see *supra* text accompanying notes 24–26.

<sup>36</sup> See, e.g., Posting of Ross Dannenberg to Patent Arcade, [http://www.patentarcade.com/2007\\_04\\_01\\_archive.html](http://www.patentarcade.com/2007_04_01_archive.html) (Apr. 30, 2007, 21:36 EST) (“The KSR case is a welcome relief for all those who have been advocating that it’s too easy to get a patent under the Federal Circuit’s TSM regime . . . .”); see also Posting of Dennis Crouch to PatentlyO, [http://www.patentlyo.com/patent/graham\\_factors/](http://www.patentlyo.com/patent/graham_factors/) (Nov. 29, 2006) (“According to opponents of the [TSM] test, the bright-line test makes patents too easy to obtain . . . .”); Brian K. Yost, *The Cousins of Change Take Aim on Patents*, BRIAN

allegation was based on the argument that showing a teaching, suggestion, or motivation is not always possible, despite the invention having been obvious to one with ordinary skills in the art.<sup>37</sup> Critics of the TSM test argued that the Federal Circuit lowered the non-obviousness bar and allowed too many low-quality patents to issue.<sup>38</sup> Ironically, while prior to the formation of the Federal Circuit many complained that the Supreme Court was too “anti-patent,”<sup>39</sup> now the Federal Circuit was accused of being too patent friendly.

For example, a report by the Federal Trade Commission stated that “many participants in and observers of the patent system expressed significant concerns that, in some ways, the patent system is out of balance with competition policy.”<sup>40</sup> The same report hinted that the rigid application of the TSM test may be the culprit for the so called low-quality patent problem:

Requiring concrete suggestions beyond those actually needed by a person with ordinary skill in the art, and failing to give weight to suggestions implicit from the art as a whole and from the nature of the problem to be solved, is likely to result in patents on obvious inventions and is likely to be unnecessarily detrimental to competition.<sup>41</sup>

Another work, by the National Research Council, warned that “there may have been some dilution of the non-obviousness standard as a result of [the Federal Circuit] decisions and their incorporation in the examination guidance compiled in the

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K. YOST--ARTICLES, <http://www.fortworthpatentlaw.com/articles> (last visited Apr. 8, 2010) (“Proponents of patent reform argued that simple application of the [TSM] test allowed ‘bad’ patents to issue.”).

<sup>37</sup> Brief for the United States as Amicus Curiae Supporting Petitioner at 19, *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2006) (No. 04-1350).

<sup>38</sup> COMM. ON INTELLECTUAL PROP. RIGHTS IN THE KNOWLEDGE-BASED ECON. ET AL., *A PATENT SYSTEM FOR THE 21ST CENTURY* 47 (Stephen A. Merrill et al., eds., National Academies Press 2004) [hereinafter MERRILL].

<sup>39</sup> See MERGES, *supra* note 8, at 660.

<sup>40</sup> FED. TRADE COMM’N, *TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY* 5 (2003), available at <http://www.ftc.gov/os/2003/10/innovationrpt.pdf>.

<sup>41</sup> *Id.* at 12. The report went on to suggest that the TSM test must be applied differently, by “assum[ing] an ability to combine or modify prior art references that is consistent with the creativity and problem-solving skills that in fact are characteristic of those having ordinary skill in the art.” *Id.* at 11. In other words, the report encouraged the Federal Circuit to curtail the TSM requirement to some extent by holding a presumption of the existence of some suggestion, teaching, or motivation in prior art under certain circumstances. This presumption in turn would help more patents being found obvious, presumably improving the patent quality. *Id.* at 11–12.

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USPTO's Manual of Patent Examining Procedure."<sup>42</sup> The study then suggested that "[t]he non-obviousness standard should be more vigorously applied . . ."<sup>43</sup> reiterating the allegation that the Federal Circuit allowed too many patents to issue despite their being in fact obvious.

*C. KSR v. Teleflex: Amid Mounting Criticisms, the Supreme Court Steps in to Review the Federal Circuit's Obviousness Jurisprudence*

Finally the Supreme Court decided to get involved in the debate, signaling to many hopefuls that their outcries about the Federal Circuit's non-obviousness doctrine would be answered by a categorical rejection of the TSM test or significant liberalization of the obviousness inquiry.<sup>44</sup> The Court granted cert. in the case of *Teleflex, Inc. v. KSR Int'l Co.*<sup>45</sup> In *KSR*, the District Court had granted Summary Judgment to the defendant in an infringement suit, holding that as a matter of law, the patentee's allegedly infringed patent was invalid as obvious.<sup>46</sup> The Federal Circuit reversed and held that the District Court's application of the TSM test was incomplete: "the district court was required to make specific findings as to [whether there was] a suggestion or motivation" that would render the patent at issue obvious.<sup>47</sup> Since genuine issues of material fact existed regarding obviousness, according to the Federal Circuit, summary judgment was inappropriate.<sup>48</sup>

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<sup>42</sup> MERRILL, *supra* note 38, at 59.

<sup>43</sup> *Id.* at 83.

<sup>44</sup> See *KSR Int'l Co. v. Teleflex, Inc.*, 119 F. App'x 282 (Fed. Cir. 2005), *cert. granted*, 550 U.S. 398 (U.S. Apr. 6, 2005) (No. 04-1350). The petition for certiorari argued that "[t]he Federal Circuit's so-called 'teaching-suggestion motivation test' has no basis in the text of § 103 or in any decision of this Court," and that "[t]he practical test of patentability developed by the precedents of [the Supreme] Court, codified by Congress in § 103, and reaffirmed in this Court's decisions in *Graham* . . . has been eviscerated by the Federal Circuit during the past two decades." Petition for Writ of Certiorari, *KSR*, 550 U.S. 398 (2005) (No. 04-1350). In this light, granting of cert. was a strong suggestion that the Court may do away with TSM altogether.

<sup>45</sup> 548 U.S. 902 (2006).

<sup>46</sup> *Teleflex Inc., v. KSR Int'l Co.*, 298 F. Supp. 2d 581, 581, 586 (E.D. Mich. 2003).

<sup>47</sup> *KSR*, 119 F. App'x at 288.

<sup>48</sup> *Id.* at 290.

*D. Empirical Studies Before KSR Casted Doubt on the Allegation that the Federal Circuit is Pro Patent*

After the Supreme Court granted cert. to *KSR* but before it decided the case, at least three different empirical studies brought the allegations of patentee-friendliness against the Federal Circuit into serious doubt.<sup>49</sup> In one study, Professor Lee Petherbridge and Professor Polk Wagner undertook a comprehensive survey of all non-obviousness decisions decided in a fifteen year period by the Federal Circuit.<sup>50</sup> Their work revealed that the Federal Circuit found patents obvious about fifty-eight percent (majority) of the time, and that findings of obviousness were increasingly common.<sup>51</sup> Moreover, the study showed that whether the Federal Circuit applied the TSM test did not have a statistically significant effect on the outcome of non-obviousness findings.<sup>52</sup> In fact, the increasing findings of obviousness were correlated to the increasing frequency at which the Federal Circuit applied the TSM test.<sup>53</sup> This finding rejected the claim that the TSM test made it harder for patents to be held obvious.<sup>54</sup> It indicated, instead, that the Federal Circuit was proportionally finding more patents obvious than not, contradicting the allegation that the court is too patent-friendly. Finally, according to the study, the procedural posture through which non-obviousness was reviewed on appeal had a strong influence on the probability of affirmance. Dispositions as a matter of law (grants of Summary Judgment and Judgment as a Matter of Law) had a lower probability of being affirmed compared to fact-based dispositions (Jury and Bench Trials, as well as Denials of Judgment as a Matter of Law).<sup>55</sup> This last finding suggested that the Federal Circuit was more willing to affirm findings of obviousness when the lower courts had thoroughly reviewed all the available evidence.<sup>56</sup> The result puts the Federal Circuit's jurisprudence in line with the teachings of

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<sup>49</sup> See *infra* notes 50, 56, 59.

<sup>50</sup> Lee Petherbridge & R. Polk Wagner, *The Federal Circuit and Patentability: An Empirical Assessment of the Law of Obviousness*, 85 TEX. L. REV. 2051, 2052 (2007).

<sup>51</sup> *Id.* at 2055.

<sup>52</sup> *Id.* Taking application of TSM tests into account, the Federal Circuit still held that a particular patent was obvious 52.4% of the time. *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> *Id.*

<sup>55</sup> *Id.* at 2082–83.

<sup>56</sup> *Id.* at 2083.

*Graham*, which dubbed non-obviousness a fact-intensive inquiry.<sup>57</sup>

Another study, by Professor Christopher Cotropia, also found that the “recent criticism [of the Federal Circuit’s TSM test was] . . . not supported” by empirical evidence gathered over a four-year course of study.<sup>58</sup> Cotropia reported that the TSM test only led to a finding of non-obviousness in about thirty-three percent of the cases.<sup>59</sup> The study concluded that the TSM test “plays a fairly small role in the [Federal Circuit’s] nonobviousness jurisprudence.”<sup>60</sup>

Finally, in a third study, Professor Gregory Mandel challenged the effect of the TSM test in findings of obviousness.<sup>61</sup> Using mock-juries, he offered empirical data that showed the TSM-test-jury-instructions did not affect the likelihood of patents being found non-obvious. This study particularly took issue with criticism of the Federal Circuit’s “hindsight bias” doctrine, which was essentially the Federal Circuit’s way of ensuring that one does not tautologically find a patent obvious.<sup>62</sup> The principle is based on the notion that patents may always seem obvious in hindsight, the same way that puzzles seem much easier once they are solved. Critics of the Federal Circuit challenged the hindsight bias principle, arguing that it was a means for a pro-patentee court to preclude findings of obviousness unless certain formalistic requirements, such as concrete evidence of a “suggestion, teaching, or motivation” *before* the time of the claimed invention, were offered.<sup>63</sup> Professor Mandel’s work brought those allegations into doubt.

#### *E. The Supreme Court Decided KSR: The TSM Test Survives*

Against this backdrop, the Supreme Court decided *KSR*. The Court reversed the decision of the Federal Circuit and affirmed

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<sup>57</sup> *Id.*

<sup>58</sup> Christopher A. Cotropia, *Nonobviousness and the Federal Circuit: An Empirical Analysis of Recent Case Law*, 82 NOTRE DAME L. REV. 911, 914 (2007). Cotropia’s study was conducted for cases decided between January 1, 2002 and December 31, 2005. *Id.* at 924.

<sup>59</sup> *Id.* at 915.

<sup>60</sup> *Id.*

<sup>61</sup> Gregory Mandel, *Patently Non-Obvious II: Experimental Study on the Hindsight Issue Before the Supreme Court in KSR v. Teleflex*, 9 YALE J.L. & TECH. 1, 16 (2006-2007).

<sup>62</sup> *Id.* at 10.

<sup>63</sup> *Id.* at 28.

the District Court's grant of summary judgment.<sup>64</sup> Yet at least as far as the text of the opinion is concerned, the Court did not seem to set the TSM test aside despite what many had hoped.<sup>65</sup> The Supreme Court only took issue with "the way the Court of Appeals applied its TSM test [in this case]."<sup>66</sup> Indeed the Court acknowledged that the TSM test formed a "helpful insight," and it was its rigid application that had become problematic.<sup>67</sup>

But the Supreme Court did not have much beyond generalizations to offer as to how to apply the non-obviousness test in the future. The Court still insisted that the inquiry must remain flexible and fact-intensive, and at the same time, it reiterated that non-obviousness is a question of law.<sup>68</sup> As to how judges must balance a fact-intensive inquiry with a difficult legal question and do so in a manner that allows regularizing summary dispositions, the Court offered little more than broad formulations: "[w]here . . . the content of the prior art, the scope of the patent claim, and the level of ordinary skill in the art are not in material dispute, *and the obviousness of the claim is apparent* in light of these factors, summary judgment is appropriate."<sup>69</sup> After all, a less-rigid TSM test (one in which findings of suggestion, teaching, or motivation may be implicit rather than concrete) remains in place; the inquiry remains legal and fact-intensive; and summary judgment should issue when

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<sup>64</sup> *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 427–28 (2007).

<sup>65</sup> Strangely enough, whether the Supreme Court rejected or left intact the TSM test is not unanimously agreed upon. Among those who believe that the TSM test did not survive is Professor John Duffy, who wrote the petition for cert. for *KSR*. In a law review article after *KSR* was decided, Professor Duffy claimed that "[t]he [TSM] test was overturned in . . . *KSR*." John F. Duffy, *Inventing Invention: A Case Study of Legal Innovation*, 86 TEX. L. REV. 1, 62 (2007). However, many—including the Federal Circuit—do not share that view. See, e.g., *Black & Decker, Inc. v. Robert Bosch Tool Corp.*, 260 F. App'x. 284, 290 (Fed. Cir. 2008) ("[T]he teaching, suggestion, motivation test remains good law for obviousness, only a rigid application of that test is problematic."). One would think that whether an entire test survives Supreme Court scrutiny is—and should be—an obvious matter (no pun intended). After all, the very test was the subject of the dispute in *KSR*. Yet, apparently, reasonable minds can still not agree whether the Supreme Court intended to do away with the TSM test in *KSR*. As the results of this study will demonstrate, however, this should hardly come as a surprise. The academia and the practicing bar have reasons to believe that all that is written in a legal opinion is not all that matters about the effects—or side effects—of that opinion.

<sup>66</sup> *KSR*, 550 U.S. at 415.

<sup>67</sup> *Id.* at 418.

<sup>68</sup> *Id.* at 415, 427.

<sup>69</sup> *Id.* at 427 (emphasis added).

facts are undisputed.<sup>70</sup> At first glance, *KSR* seems to state what is somewhat obvious about non-obviousness.

Accordingly, the critics of the decision dubbed *KSR* a wholesale disappointment that will fail to achieve any significant doctrinal change (improvement) in the non-obviousness jurisprudence.<sup>71</sup> For example, Professor Mandel argued that despite the opportunity to fully address non-obviousness in *KSR*, the Supreme Court “still has never defined what this core patent standard requires.”<sup>72</sup> Another critique suggested that the Court’s failure to “eliminate[] the TSM test in its entirety” turned obviousness into a “meaningless standard.”<sup>73</sup>

Others did not share this view. Some have suggested that *KSR* did in fact make it easier to render patents obvious.<sup>74</sup> Emery Simon, Counselor to the Business Software Alliance, reflected that *KSR* “has given patent examiners (as well as judges) greater opportunity to find inventions to be obvious.”<sup>75</sup> Others similarly suggested that *KSR* will make it easier for patents to be found obvious.<sup>76</sup> An article by the *Practicing Law Institute* also suggested that *KSR* will prevent judges from issuing summary judgments of validity earlier in the litigation, and that

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<sup>70</sup> *Id.* at 415, 427.

<sup>71</sup> See, e.g., Gregory N. Mandel, *Another Missed Opportunity: The Supreme Court’s Failure to Define Nonobviousness or Combat Hindsight Bias in KSR v. Teleflex*, 12 LEWIS & CLARK L. REV. 323, passim (2008) (arguing that the Supreme Court failed to recognize and consequently mishandled the problem of hindsight bias in *KSR*, and that the Court’s decision is unlikely to lead to clarity and consistent application of the law); Ashley Houston, Note, *KSR International Co. v. Teleflex Inc.: The Supreme Court Declines the Opportunity to Finally Set the Record Straight and Articulate One Clear Standard for Determining Obviousness in Patent Cases*, 4 J. BUS. & TECH. L. 219, 234 (2009) (stating that the Court’s ruling leaves room for irregularity).

<sup>72</sup> Mandel, *supra* note 71, at 323. “The failure to instruct on the level of ingenuity necessary to satisfy nonobviousness leads to inconsistent and unpredictable non-obvious decisions.” *Id.*

<sup>73</sup> Houston, *supra* note 71, at 229.

<sup>74</sup> Janice M. Mueller, *Chemicals, Combinations, and “Common Sense”: How the Supreme Court’s KSR Decision is Changing Federal Circuit Obviousness Determinations in Pharmaceutical and Biotechnology Cases*, 35 N. KY. L. REV. 281, 285 (2008).

<sup>75</sup> David B. Gornish, *A Patent Law Primer for Health Law Practitioners*, 21 A.B.A. HEALTH L. SEC. HEALTH LAW 12 n.44 (Oct. 2008).

<sup>76</sup> See, e.g., Anne Broache, *Supreme Court Loosens Patent ‘Obviousness’ Test*, CNET NEWS, Apr. 30, 2007, [http://www.news.com/Supreme-Court-loosens-patent-obviousness-test/2100-1014\\_3-6180220.html](http://www.news.com/Supreme-Court-loosens-patent-obviousness-test/2100-1014_3-6180220.html) (“[*KSR* provides a] better opportunity for examiners to weed out patents or applications that are not worthy of getting patents, and it will go a long way toward re-establishing patent quality.”).

obviousness would linger on until cases go to trial, perhaps to the patentees' disadvantage.<sup>77</sup>

These two views, however, are educated guesses at best and mere speculations otherwise. They entail reflections on the language of *KSR* and a few decisions of the Federal Circuit that followed, rather than providing a holistic evaluation of the problem. In fact, at the time of drafting this article, the author was unable to find any study that has empirically analyzed the decisions of the Federal Circuit after *KSR* in search for meaningful patterns that would explain the effect of that case on non-obviousness.

### III. THE PROPOSED STUDY AND METHODOLOGY

This study is concerned with the effect of *KSR* on the law of obviousness in particular and patent validity in general. That effect is “measured” through gauging the reaction of the lower courts—the Federal Circuit Court of Appeals as well as certain District Courts—to *KSR* and determining whether courts are more or less likely to find patent claims invalid since *KSR* was decided. The determination is based on content analysis of judicial opinions. Content analysis denotes “systematic reading and analysis of [the] text[]” of case law.<sup>78</sup> It comprises four steps: “selecting cases, coding cases, counting case contents, and analyzing [the results].”<sup>79</sup> In other words, this study selects and groups cases, measures certain aspects of each opinion based on predetermined criteria, counts similar findings in all cases within a study group, and analyzes the results in search for meaningful patterns that might help support or refute certain hypotheses. The first three steps and the criteria used in each step are explained in the following sections. Part IV reports the results of the study and provides analysis.

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<sup>77</sup> Robert P. Taylor, *Patent Law in Flux: Echoes of the Supreme Court*, in 14TH ANN. INST. ON INTELL. PROP. LAW 93, 108 (PLI Intellectual Property Handbook G-947, 2008) (“For a number of years, the Federal Circuit’s case law effectively neutralized any possibility that a patent would be held invalid on prior art grounds, absent dead-on anticipatory art, which is much more objectively assessable than is obviousness. *KSR* injects a much elevated level of uncertainty for both parties and as a result is likely to embolden defendants and make plaintiffs more hesitant to go to trial.”).

<sup>78</sup> See Petherbridge, *supra* note 50, at 2070.

<sup>79</sup> *Id.*

*A. Case Selection*

The cases included in the database include all decisions of the Federal Circuit Court of Appeals as well as those decided by certain District Courts that were decided within the studied period. The District Courts are chosen out of the busiest patent litigation districts in United States and include Northern District of California, Central District of California, Northern District of Illinois, and Southern District of New York.

Cases from the aforementioned courts are included in this study if they meet two conditions: 1) they contain at least one obviousness analysis, and 2) they were decided between September 1, 2004 and February 28, 2009. This time frame is selected with reference to two key dates: the date the Supreme Court granted certiorari to the petitioner in *KSR* (June 26, 2006)<sup>80</sup> and the day the Supreme Court decided *KSR* (April 30, 2007).<sup>81</sup> The study time period comprises the interval between these two key dates, as well as twenty-two months before certiorari was granted and twenty-two months after *KSR* was decided. In addition to obviousness decisions, and for reasons described in the next section, this study also surveyed all decisions of the Federal Circuit that deal with anticipation that were decided during the same time-frame.

Cases were selected through a series of over-inclusive searches on Westlaw. For example, in order to isolate Federal Circuit cases containing obviousness issues decided after *KSR*, the author initially searched for all Federal Circuit cases that included any mutation of the word “obvious” decided after April, 30, 2007. Then, cases were manually screened to select those that contain obviousness findings. Cases that exclusively include obviousness-type double patenting were not included in the database due to the different nature of obviousness-type double patenting and also to allow for ease of comparison of this study to others conducted before *KSR* that also excluded obviousness-type double patenting.<sup>82</sup> Table 1 shows the number of cases included in this study, *i.e.*, the number of cases that contributed to a count in any of the studied categories.

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<sup>80</sup> *KSR Int'l Co. v. Teleflex, Inc.*, 548 U.S. 902 (2006).

<sup>81</sup> *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007).

<sup>82</sup> See Petherbridge, *supra* note 50, at 2072.

<b>Court/Type of Analysis</b>	<b>Period of the Study</b>	<b>Number of Cases</b>
Federal Circuit/Obviousness	Before Grant of Cert	34
Federal Circuit/Obviousness	Between Cert and <i>KSR</i>	19
Federal Circuit/Obviousness	After <i>KSR</i>	48
Federal Circuit/Anticipation	Before Grant of Cert	35
Federal Circuit/Anticipation	Between Cert and <i>KSR</i>	18
Federal Circuit/Anticipation	After <i>KSR</i>	39
N.D.Cal./Obviousness	Before Grant of Cert	9
N.D.Cal./Obviousness	Between Cert and <i>KSR</i>	12
N.D.Cal./Obviousness	After <i>KSR</i>	21
C.D.Cal./Obviousness	Before Grant of Cert	7
C.D.Cal./Obviousness	Between Cert and <i>KSR</i>	1
C.D.Cal./Obviousness	After <i>KSR</i>	5
S.D.N.Y./Obviousness	Before Grant of Cert	6
S.D.N.Y./Obviousness	Between Cert and <i>KSR</i>	7
S.D.N.Y./Obviousness	After <i>KSR</i>	4
N.D.Ill./Obviousness	Before Grant of Cert	6
N.D.Ill./Obviousness	Between Cert and <i>KSR</i>	3
N.D.Ill./Obviousness	After <i>KSR</i>	3
<b>Total Number of Cases</b>		<b>277<sup>83</sup></b>

Table 1: Number of cases included in each category of cases

<sup>83</sup> The total number of cases that were manually studied was much larger than 277 (the sum exceeded 1,500 cases). The majority of cases retrieved through broad searches on Westlaw did not include determinations based on obviousness or anticipation. The 277 number represents all those cases that were taken into account in the final result of the study.

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*B. Coding*

Coding refers to combing through a case in search for certain quantifiable attributes based on predetermined criteria. The predetermined criteria in this study includes: 1) the number of obviousness or anticipation analyses in the opinion; 2) the outcome of each obviousness or anticipation analysis; 3) the number of patents subject to obviousness or anticipation analyses; 4) the procedural posture through which the case came up on appeal (only applicable to Federal Circuit opinions); 5) the procedural posture through which the court disposed of obviousness or anticipation issues (only applicable to District Court decisions); 6) whether the decision cited *KSR* (only applicable to cases decided after *KSR*); 7) whether the decision included a dissenting opinion (only applicable to Federal Circuit opinions); 8) whether the decision was decided *en banc* (only applicable to Federal Circuit opinions); and 9) whether the decision was published in a Federal Reporter.<sup>84</sup>

*C. Counting Cases and Searching for Patterns*

Once the measurement criteria were defined, the author studied each case manually and assigned values to each of the nine criteria for the case. Every patent that was subject to an obviousness or anticipation analysis formed an entry in the database. Where one patent was subject to multiple obviousness analyses, more than one analysis was counted only where the outcomes of the analyses were different. To emphasize, this study counted the number of patents subject to a distinct obviousness analyses—not the number of cases or patent claims—to form the bases of its findings. An analysis, for the purpose of this study, is the court's attempt to justify its findings of obviousness or anticipation regardless of how many patent claims are invalidated (or validated) based on that analysis.

For example, if the court performs one analysis to render three claims of a patent obvious, and another analysis to find four other claims non-obvious, the author would include the case in two different data record entries: one would increase the count for findings of obvious by one; the other would increase the count for findings of non-obvious by one. On the other hand, if claims

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<sup>84</sup> Only the first three data fields were ultimately used for writing this article.

of a single patent were rendered obvious through two different set of analyses, only one count was added to the number of obviousness rulings in the database.<sup>85</sup> Finally, where multiple patent claims in different patents were invalidated through one common analysis, only one entry was recorded in the database. Hence, if the case in the example above was the only case included in the database, the study would report an even 50/50 obvious/non-obvious ruling spread, despite the fact that the court has found more claims non-obvious than obvious (with a four to three ratio).

This counting method is justified based on the objectives of this study. As mentioned above, the goal is to explore the effect of *KSR* on the law of obviousness. That effect is measured by determining (and comparing) the courts' tendencies to find patents obvious before and after *KSR*.<sup>86</sup> Determination of a particular court's tendency to find patents obvious, however, is not necessarily a function of how many claims that court finds obvious; whether the particular result of one analysis invalidates one or many patent claims is irrelevant. What matters is how likely a court is to arrive at a particular result each time it performs an obviousness analysis.

#### *D. Potential Shortcomings of the Methodology*

##### 1. Subjectivity

Perhaps the single most significant shortcoming of this study, and many other studies of this kind, is the subjectivity of it. Counting analyses, for example obviousness analyses, is an inevitably subjective task. Courts often do not offer multiple independent grounds for reaching their holding. And when they do, they do not signpost each route through which they arrive at the result. Counting analyses, therefore, entails a certain degree of arbitrariness. That is, different students may count similar cases differently, and the same student may not be able to

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<sup>85</sup> There are two justifications for this aspect of the study. The first justification here is that the second analysis is not determinative in the outcome of the obviousness decision. Once the court has found a claim to be obvious in one analysis, it does not manifest a stronger tendency to find claims obvious by merely reaffirming its ruling through a different analysis. The second justification is that this particular method decreases the risk of introducing subjectivity into the study. *See infra* Part III.D.i.

<sup>86</sup> *See infra* part IV.A–C.

remain consistent in counting analyses throughout the study.

Keeping this potential handicap in mind, the author adopted the particular methodology of this study in part to minimize subjectivity. One way to reduce subjectivity is to avoid making “close calls” in counting analyses. As described in the previous section,<sup>87</sup> where patent claims within one patent are subject to multiple invalidity analyses in a case, more than one analysis was counted *only* where the outcomes of the analyses were different. It is easy to distinguish two independent analyses when their outcomes are different. It is often complex and therefore more subjective, however, to decide whether two analyses leading to the same result are truly independent. By eliminating the need to distinguish analyses that arrive at a similar result, the author decreased the need to make “close calls,” and thus reduced the subjectivity of the study.<sup>88</sup>

## 2. Rule 36 Summary Affirmances

This study does not take summary affirmances of invalidity rulings into account.<sup>89</sup> Some scholars have criticized empirical studies of the Federal Circuit that do not include Rule 36 dispositions. For example, then-Professor Kimberly Moore<sup>90</sup>

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<sup>87</sup> See *supra* part III.C.

<sup>88</sup> Of course, this method also has its own flaws. Mainly, in addition to excluding the close calls, it also excludes the not-so-close calls where multiple analyses performed on multiple patent claims lead to similar results and are also easily distinguishable as independent. As described above, however, this method is also in line with the objective of this study: to gauge the tendency of the courts to render *patents* invalid at any given period studied. See also note 85.

<sup>89</sup> Each year, the Federal Circuit affirms many of the cases on its docket through Rule 36 dispositions. Rule 36 affirmances are summary dispositions that do not contain any written analysis. Rule 36 states:

The court may enter a judgment of affirmance without opinion, citing this rule, when it determines that any of the following conditions exist and an opinion would have no precedential value: (a) the judgment, decision, or order of the trial court appealed from is based on findings that are not clearly erroneous; (b) the evidence supporting the jury's verdict is sufficient; (c) the record supports summary judgment, directed verdict, or judgment on the pleadings; (d) the decision of an administrative agency warrants affirmance under the standard of review in the statute authorizing the petition for review; or (e) a judgment or decision has been entered without an error of law.

Fed. Cir. R. 36.

<sup>90</sup> Judge Moore currently sits on the Federal Circuit Court of Appeals. United States Court of Appeals for the Federal Circuit, Judicial Biographies, <http://www.cafc.uscourts.gov/judgbios.html#Moore> (last visited Apr. 10, 2010)

argued that failure to take Rule 36 affirmances into account caused scholars to exaggerate the Federal Circuit's claim construction reversal rates.<sup>91</sup> Professor Richard Gruner has recently pointed out the same.<sup>92</sup> These criticisms are valid. Since Rule 36 dispositions only contain affirmances, not reversals or remands, their exclusion ordinarily leads to overestimating the reversal rates. Therefore, exclusion of Rule 36 decisions from any given study will often undermine the value of its findings significantly.

In this particular study, however, although Rule 36 rulings would likely affect the reported reversal and affirmance rates, they would not affect the two major findings of this article. The first finding—that *KSR* affected the law of obviousness significantly—is based on obviousness findings in district courts as much as the Federal Circuit. Indeed, given that the Federal Circuit only reviews a fraction of district court rulings, inclusion of Rule 36 affirmances, which do not exist in trial courts, will likely not materially impact the first conclusion of this article. The second finding—that the influence of *KSR* on the Federal Circuit's invalidity jurisprudence is not due to the text of the Supreme Court opinion—is mainly based on the Federal Circuit's reaction to the grant of cert. to *KSR*. The main hypothesis here is that *KSR* was a trigger to cause the Federal Circuit to react to allegations of being pro-patent, and that the case provided the Federal Circuit with an opportunity to demonstrate to the outside world that the court is not pro-patent. This hypothesis cannot, and should not, be based on Rule 36 affirmances because, by their nature, Rule 36 affirmances do not communicate anything to the outside world.<sup>93</sup> Rule 36 decisions are not an

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(indicating Judge Moore's various positions as professor of law prior to her appointment to the Federal Circuit Court of Appeals).

<sup>91</sup> Kimberly A. Moore, Markman *Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 234–35 (2005).

<sup>92</sup> Richard S. Gruner, *How High is too High?: Reflections on the Sources and Meaning of Claim Construction Reversal Rates at the Federal Circuit*, LOY. L.A. L. REV. (forthcoming 2010) (on file with author).

<sup>93</sup> For example, one of the most significant discoveries of this study is that the Supreme Court's granting of cert. alone affected the Federal Circuit's invalidity analyses outcomes. It is possible that after counting Rule 36 affirmances, another study of this kind may reveal that invalidity findings actually remained the same after granting of cert—meaning that the Federal Circuit shifted many of its validity rulings to Rule 36 affirmances instead of writing opinions, but the total balance remained the same. This, of course, would be a surprising finding because the Federal Circuit issues Rule 36 affirmances only based upon whether summary affirmance is warranted, and

avenue through which the Federal Circuit can refute the allegations of being pro-patent, and they are therefore not an indicator for what this study sets out to report.

#### IV. RESULTS AND ANALYSIS

The results of this study point towards two distinct conclusions. First, *KSR* has had a significant effect on the law of obviousness. Studies of both the Federal Circuit and District court cases reveal that the courts are more likely to find patents invalid for obviousness as a result of *KSR*.<sup>94</sup> Second, the results indicate that the Federal Circuit may be at times sensitive to criticism coming from the members of the bar and academia. This sensitivity is reflected in the statistical patterns of the Federal Circuit's decision-making processes that are revealed by this study. Each conclusion is discussed in the following two subsections respectively.

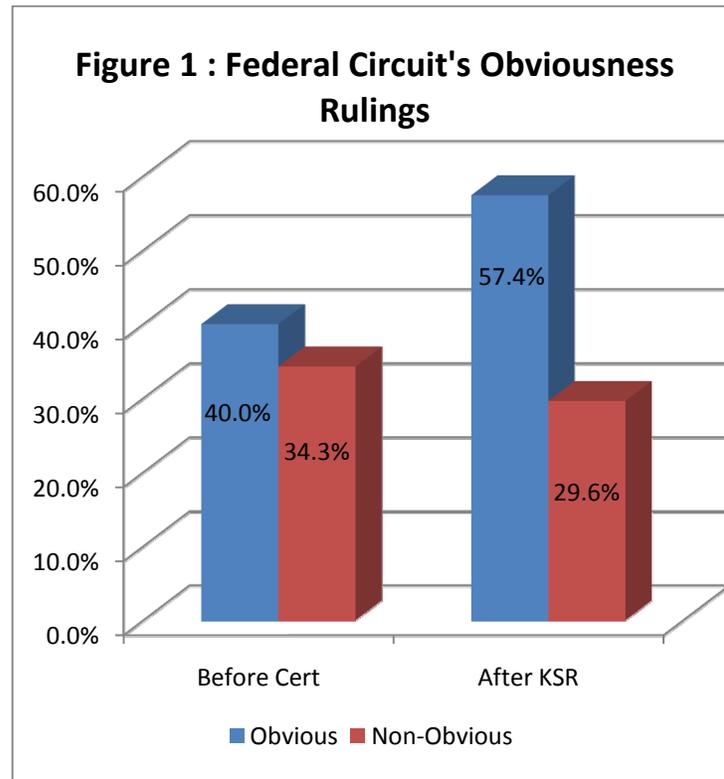
##### A. *KSR Has Made It Easier to Find Patents Invalid as Obvious*

Figure 1 reflects the results of the Federal Circuit's obviousness analyses before certiorari was granted for *KSR* and after *KSR* was decided.

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not based on the outcome of the case. *See supra* note 89. Even such an extreme finding would still confirm the hypothesis of this article, however, by demonstrating that the Federal Circuit reacted to the granting of cert. by attempting to show that it not pro-patent. In sum, it is this reaction of the Federal Circuit to *KSR* that is the main subject of this study.

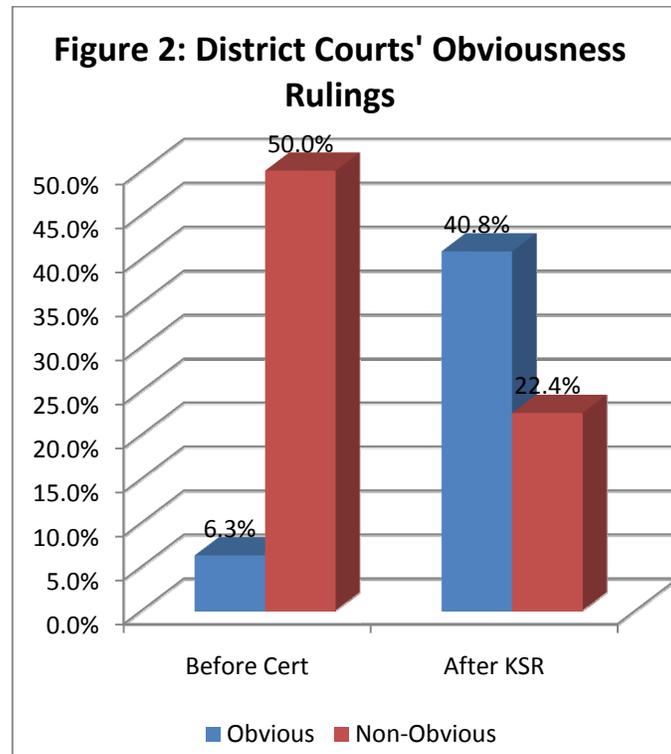
<sup>94</sup> In this instance, the author uses "*KSR*" to signify an event comprised of all the events leading up to the granting of certiorari, the grant of certiorari, and the opinion itself. As the study will reveal in the following discussions, the effect of *KSR* does not seem to be directly related to the text of the opinion. In other instances, unless modified, the author uses "*KSR*" to signify the opinion itself. The announcement of the Supreme Court's decision to grant certiorari is hereinafter simply referred to as "the cert."



As Figure 1 indicates, *KSR* may have caused a significant change in the frequency in which the Federal Circuit finds patents to be obvious.<sup>95</sup> The results show that the Federal Circuit found patents to be obvious 40% of the time before grant of cert. That number went up to 57.4% after *KSR*. Figure 1 also depicts that patents were found to be non-obvious 34.3% of the time before cert. was granted and only 29.6% after *KSR* was decided.

<sup>95</sup> Empirical studies of this sort only establish that particular statistical trends exist and that the reported trends are statistically correlated to the events studied. Here, it happens that patents are held more obvious after *KSR* than they were before cert. was granted. See Fig. 1. This showing *could* indicate that *KSR* has had a significant effect on the likelihood that the Federal Circuit finds a patent obvious. The article does not claim, however, that there is a definite causal relationship between the statistics presented and the actual effect of *KSR* on the decision-making of the courts here studied. Similar to any other empirical analysis, the study here portrays events as they occurred and attempts to offer reasons as to why certain trends exist. Statistical analyses do not go further to demonstrate an absolute certainty as to why a particular group of cases was decided in a certain way.

A similar trend existed in the district courts subject to this study. Figure 2 shows the result for the study of the collection of four judicial districts (Northern and Central Districts of California, Northern District of Illinois, and Southern District of New York).



As Figure 2 demonstrates, there was a dramatic increase (almost sevenfold) in lower courts' willingness to find patents obvious after *KSR*, compared to the time before the Supreme Court announced its intention to hear the case (from 6.3% to 40.8%). There was also a substantial decrease in the frequency in which patents are held valid against obviousness challenges (from 50% to 22.4%).

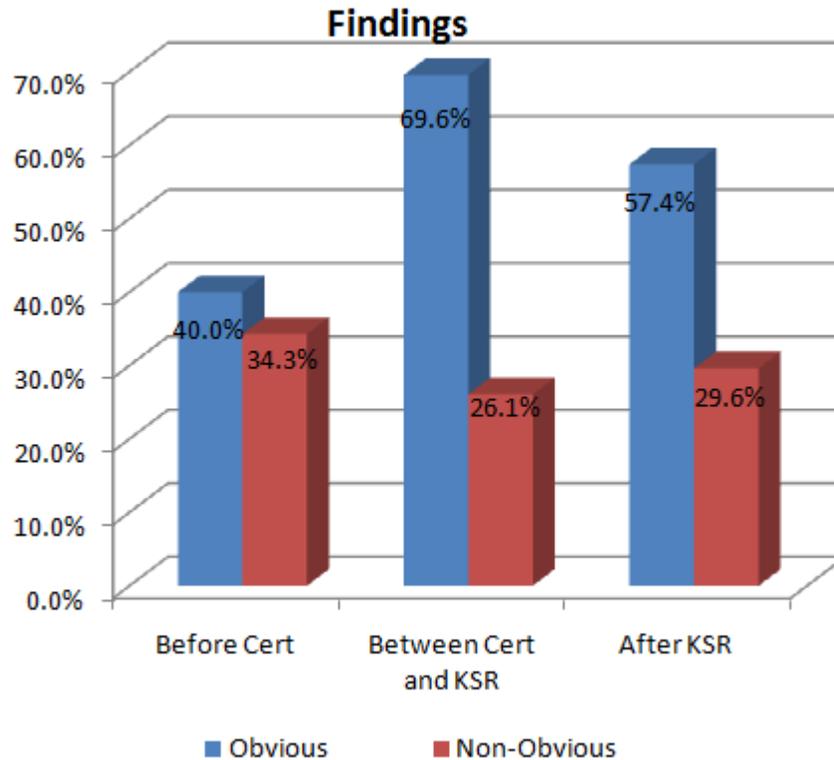
It is more difficult for patentees to pass the obviousness hurdle after *KSR* than it was before cert. was granted. Despite many criticisms alleging that *KSR* was a wasted opportunity to

significantly change the substance of the obviousness doctrine,<sup>96</sup> *KSR* has prompted both the Federal Circuit and district courts to find more patents invalid as obvious. If *KSR*'s success depends on a larger share of patents being found obvious—a proposition on which this article does not make a normative claim—*KSR* is far from a waste; it is a huge success.

### *B. The Federal Circuit Reacted to the Grant of Certiorari*

So far, the reported results have focused on the period before cert. was granted and the time after *KSR* was decided. But what happened in the period in between? Figure 3 depicts the Federal Circuit's obviousness rulings, including those made between the time cert. was granted and the time *KSR* was decided.

**Figure 3: Federal Circuit's Obviousness**



As Figure 3 indicates, during the period when *KSR* was pending on petition to the Supreme Court, the Federal Circuit

<sup>96</sup> See *supra* note 71.

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found patents obvious almost 70% of the time and non-obvious 26% of the time. This means that the highest percentage of obviousness findings in the Federal Circuit occurred after the Supreme Court granted cert., but before *KSR* was decided. Also, the lowest rate of non-obviousness findings happened during this interim period.

This result is quite unexpected because granting cert. does not change the state of the law,<sup>97</sup> and so the stark contrast in percentage of patents being held invalid before and after grant of cert. cannot be explained by any substantive change in the obviousness doctrine. The data seem to indicate that the Federal Circuit perceived the Supreme Court's decision to hear *KSR* as a nod of approval to the critics of the Federal Circuit, which alleged that the appeals court was too pro-patent. Consequently, as soon as the Supreme Court announced its decision to grant cert., the Federal Circuit reacted by raising the obviousness bar to find more patents invalid.

Figures 4 and 5 further explore the obviousness decisions of the Federal Circuit during the three periods of the study. Figure 4 depicts how the Federal Circuit treated the lower courts' rulings where the lower court had found a given patent invalid as

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<sup>97</sup> Some scholars have noted that after cert. was granted for *KSR*, the Federal Circuit attempted to make certain adjustments to the TSM test in its application. Mainly, according to this view, the Federal Circuit attempted to clarify that the TSM test was flexible and that evidence of prior teaching, suggestion, or motivation could be implied in prior art, rather than requiring the alleged infringer to make that showing with express physical evidence. See, e.g., John F. Duffy, *Inventing Invention: A Case Study of Legal Innovation*, 86 TEX. L. REV. 1, 65 (2007) ("Interestingly enough, even before the Supreme Court disapproved of the [TSM] test, the Federal Circuit had already begun dismantling [the TSM test] by interpreting it as exceptionally flexible and by permitting the test to be satisfied by all manner of implicit and indeed nonexistent teachings, suggestions, or motivations.") (citing *In re Kahn*, 441 F.3d 977, 987 (Fed. Cir. 2006) ("A suggestion, teaching, or motivation to combine the relevant prior art teachings does not have to be found explicitly in the prior art, as 'the teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references.") (quoting *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000)). As Professor Duffy also notes, even the Supreme Court took notice of this shift in TSM's application. See Duffy, *supra* at 65 (referring to *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) ("[T]he Court of Appeals has since [grant of cert.] elaborated a broader conception of the TSM test than was applied in the instant matter.")). The assumption that the law of obviousness did not change when cert. was granted, therefore, is not entirely accurate. What the statement is intended to imply, however, is not that the rulings of the Federal Circuit did not change. Rather, it is meant to state the obvious notion that granting the cert. does not change the rules.

obvious.

**Figure 4: Federal Circuit's Treatment of Lower Courts' Findings of Obviousness**

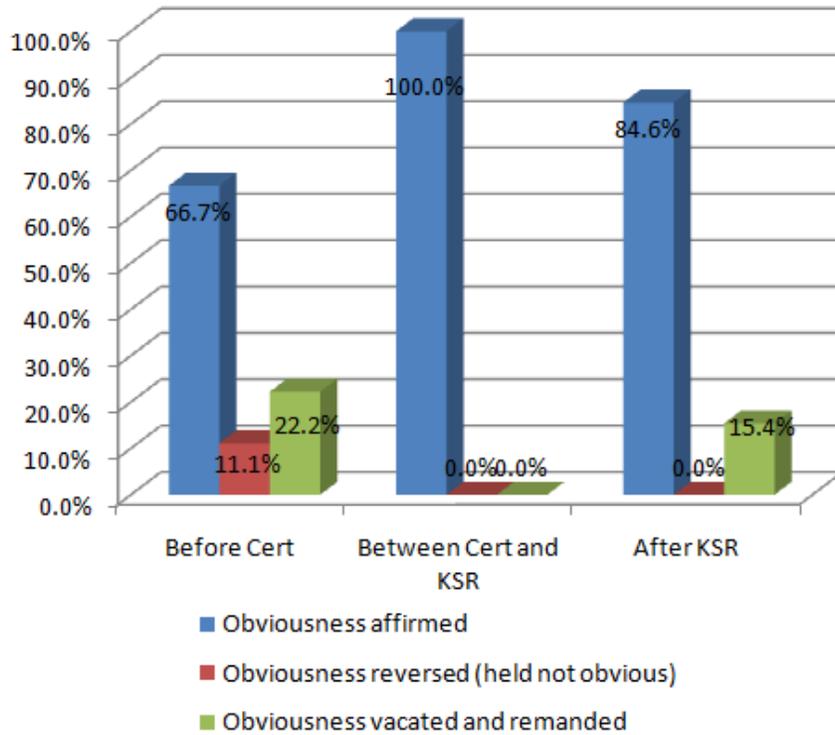


Figure 4 shows that while petition to the Supreme Court was pending, the Federal Circuit affirmed every single lower court's ruling which had invalidated a patent claim. Before cert., however, the Federal Circuit only affirmed obviousness findings 66.7% of time, while reversing to non-obvious on little more than 11% of occasions. After *KSR*, obviousness findings of lower courts were affirmed at 84.6% and vacated and remanded in 15.4% of the times. Twenty-two months after *KSR*, the Federal Circuit had yet to reverse an obviousness ruling to non-obvious.

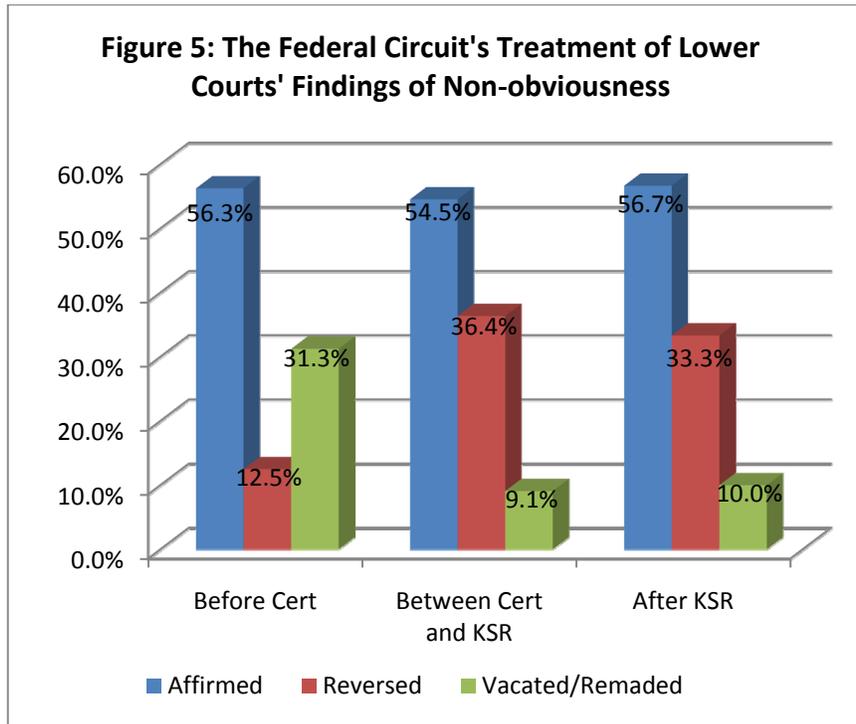
Figure 5 depicts how the Federal Circuit treated the lower courts' findings of non-obviousness during the same three periods. This suggests that the Federal Circuit was quite even-handed in affirming the lower courts' findings of non-obviousness across all three periods of the study. But after grant of cert., the

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Federal Circuit became three times more likely to reverse a lower court's ruling of non-obviousness than it was to remand the case for further determinations by the lower courts. This trend remained almost the same after *KSR* was decided.



As an initial matter, we note that Figure 5 rules out the possibility that the Federal Circuit only decided the “easy” obviousness cases while *KSR* was pending before the Supreme Court. Figure 4 alone could perhaps suggest that while *KSR* was pending before the Supreme Court, the Federal Circuit only decided cases in which obviousness of the patents at issue was not a close call. Perhaps the Federal Circuit only issued opinions in obviousness disputes in which the judges believed that no amount of change in the law could possibly make a difference. Given that most patent law enthusiasts expected the Supreme Court to tighten the obviousness belt,<sup>98</sup> the Federal Circuit could have possibly pushed the “easy obvious” cases through while awaiting the Supreme Court’s decision to see what it must do

<sup>98</sup> See *supra* Part II.B.

with those in which it believed the patents were likely to be non-obvious. This could potentially explain the surge in the obviousness findings during the period in which the case was pending on petition to the Supreme Court.

But then the findings depicted in Figure 5 bring that explanation into serious doubt. As Figure 5 suggests, after cert. the Federal Circuit became three times more likely to reverse a lower court's decision of non-obviousness and three times less likely to remand the case for a new determination. This article does not set out to qualify cases decided during this period as "easy" or "close." Nonetheless, one can expect that most reversals are not easy cases. Otherwise, the lower court judge would have gotten the case right and reversal would not be required. Moreover, if the Federal Circuit's high affirmance rate of obviousness rulings during the middle period was a result of the court's tendency to punt difficult cases, the court would have perhaps remanded cases where it disagreed with the lower court's finding of non-obviousness. That way, the lower court or the parties could have stayed the action until the Supreme Court's ruling showed the way. Yet, the Federal Circuit was much more eager to reverse non-obviousness than to remand cases after cert. was granted. The aforementioned theory—that the increase in frequency at which the Federal Circuit found patents obvious after cert. but before *KSR* was due to the court's attempt to stay away from difficult cases until *KSR* was decided—does not fully explain the trends at play above.

That leaves us with the initial theory posed. Perhaps the Federal Circuit reacted to *KSR* prophylactically. Granting cert. came as a sign that the Supreme Court agreed with the critics of the Federal Circuit, who accused the court of being too pro-patent. The Federal Circuit, sensitive to mounting criticisms, did not await the Supreme Court's decision. It raised the bar on obviousness in anticipation of the Court's ruling on *KSR*. As a result, the Federal Circuit became much more likely to find a patent obvious. After the Supreme Court decided *KSR*, however, it appeared that the Court did not take things as far as many—including the Federal Circuit—had expected. Relieved of the pressures and surprised by the outcome, the Federal Circuit relaxed the obviousness test once more, but it never eased it quite to the same levels compared to the pre-cert. period.

Another explanation, or a second way to look at the one already offered, is that the Federal Circuit attempted to "save"

the TSM test. Despite protesting that the TSM test resulted in low-quality patents, the critics conceded at least one important benefit: the TSM test was easy to apply.<sup>99</sup> As a rule-based test, the TSM allowed an almost mechanical application of the obviousness test. It allowed the trial courts to look for specific types of evidence, and so it provided clarity to the obviousness doctrine. The only problem—that the critiques seemed to have—was that the test made it too easy for patents to withstand the obviousness challenge and thus resulted in low quality patents.<sup>100</sup> And so the Federal Circuit set out to prove to the Supreme Court and the critics that the TSM test could be applied in a way that rendered more patents invalid as obvious, perhaps hoping that the structured approach to determining obviousness could nevertheless survive.<sup>101</sup>

The Federal Circuit may have gotten what it wanted to some extent. There is reason to believe—including statements made by the Justices during oral arguments—that the Federal Circuit's reaction to the cert. did not go unnoticed by the Supreme Court.<sup>102</sup> And as mentioned above, nothing seemed to

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<sup>99</sup> See, e.g., James W. Beard & Albert P. Halluin, *An Analysis of CIGS Solar Cell Technology*, 6 NANOTECHNOLOGY L. & BUS. 19, 24 (2009) (“[KSR] tends to obfuscate the clarity, if over simplicity, of the Federal Circuit’s TSM test.”); Christopher M. Jackson, Comment, *The War on Drugs: How KSR v. Teleflex and Merck v. Integra Continue the Erosion of Pharmaceutical Patent Protection*, 36 CAP. U. L. REV. 1029, 1058 (2008) (“One distinctly positive attribute that the Court of Appeals’ TSM test included was clarity.”); Liza Vertinsky, *Reconsidering Patent Licensing in the Aftermath of MedImmune*, 45 HOUS. L. REV. 1609, 1615–16 (2009) (stating that the TSM test showcases the Federal Circuit’s affinity for bright-line rules).

<sup>100</sup> Evaluating the Federal Circuit’s claim constructions, Professors Petherbridge and Wagner have suggested that the Federal Circuit’s patent jurisprudence may be divided into two opposite poles: a procedural approach that favors clear rules and a holistic approach that prefers standards. R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105 *passim* (2004).

<sup>101</sup> Indeed, while *KSR* was pending before the Supreme Court, the Federal Circuit elaborated on the virtues of the TSM test: “It is difficult to see how our suggestion test could be seen as rigid and categorical given the myriad cases over several decades in which panels of this court have applied the suggestion test flexibly.” *Dystar Textilfarben GmbH & Co. v. C.H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006); see also Rebecca S. Eisenberg, *Pharma’s Nonobvious Problem*, 12 LEWIS & CLARK L. REV. 375, 387–88 (2008).

<sup>102</sup> During oral arguments for *KSR*, the Chief Justice and Justice Scalia both suggested that the Federal Circuit had reacted to the Court’s decision to grant cert. Transcript of Oral Argument at 51, *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007) (No. 04-1350) (“CHIEF JUSTICE ROBERTS: . . . [T]he Federal Circuit’s approach focuses narrowly prior to our grant of certiorari, allegedly more flexibly after, on prior art, as opposed to I would say common sense.”).

have radically changed about the law of obviousness after *KSR*. The TSM test was not overruled; it was just to be applied less rigidly, *i.e.*, in a way to render more patents obvious. The *Graham* factors remained in place, and the secondary factors survived as well. Once the Supreme Court decided *KSR*, the Federal Circuit again relaxed the obviousness test, and the obviousness findings declined, though not to the pre-cert. levels. At last, the TSM test may not be as potent as it was before *KSR*, but the Federal Circuit seems to have managed to keep it alive.

*C. KSR Also Affected the Federal Circuit's Anticipation Doctrine*

In order to further test the Federal Circuit's sensitivity to allegations of being too pro-patent, this study examined the effect of *KSR* on the Federal Circuit's anticipation decisions. If the Federal Circuit truly reacted to the decision of the Supreme Court to grant cert. to *KSR* as a signal against its alleged "pro-patent" jurisprudence, and if changes in statistical trends after *KSR* are independent of any doctrinal change to the law of obviousness, then it may be that the effects of *KSR* were not limited to the Federal Circuit's decisions on obviousness. Perhaps the Federal Circuit's reaction to *KSR* went beyond the law of obviousness and spilled into other patent invalidity doctrines such as anticipation as well.

Figure 6 depicts the frequency in which the Federal Circuit found patents to be anticipated (or not) in the three time intervals of this study. The Federal Circuit found patents to be anticipated in almost 42% of the times before cert. was granted, 77% after cert., and 40% after *KSR* was decided. The opposite trend was observed in the rate in which patents were held valid in the face of anticipation challenges (44% valid before cert., 17% valid after cert., and 37% after *KSR*). A patent was almost twice more likely to be invalidated as anticipated after cert. was granted than before. The Federal Circuit reverted back to pre-

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Later in the argument, when Respondent Teleflex's attorney suggested that the Federal Circuit has had a long time to consider and refine the TSM test, Justice Scalia objected: "And in the last year or so, after we granted cert in this case after these decades of thinking about it, it suddenly decides to polish it up." *Id.* at 53. Teleflex's attorney responded: "Justice Scalia, if you actually believe that, then you just don't believe the judges in the Federal Circuit because in each of these opinions they say quite explicitly we are not changing it." *Id.* See also *supra* note 97.

cert. anticipation rates after *KSR* was decided.

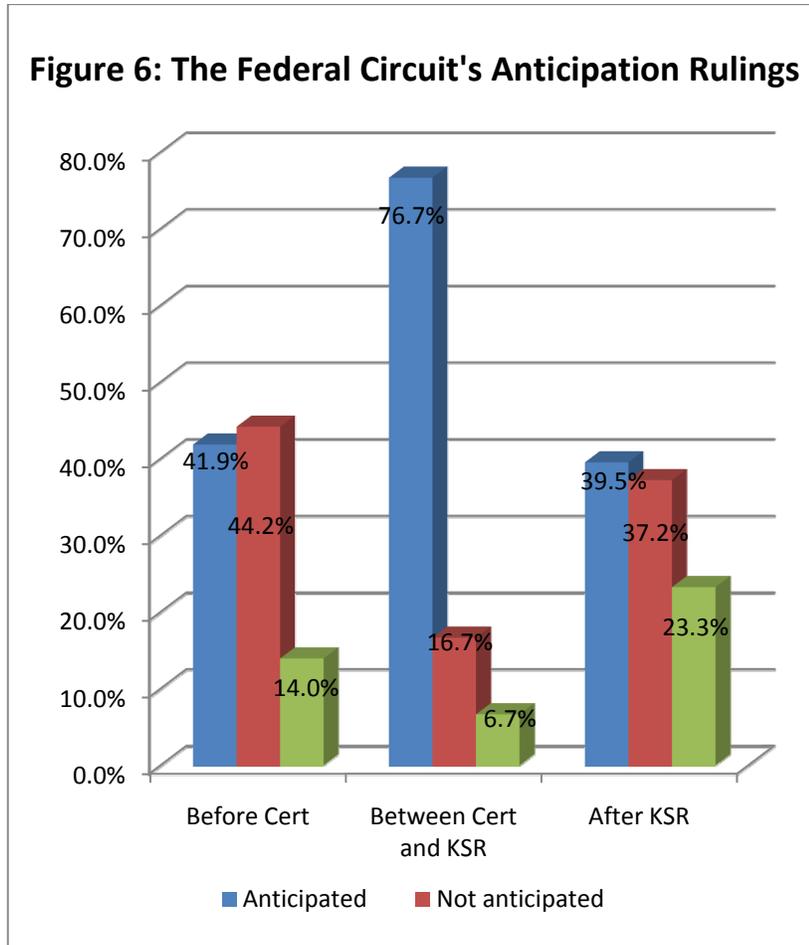


Figure 6: Federal Circuit’s anticipation rulings

Figures 7 and 8 further explore the Federal Circuit’s anticipation rulings during the periods subject to the course of this study. Figure 7 demonstrates the Federal Circuit’s rates of affirmance or reversal of the lower courts’ findings of anticipation.

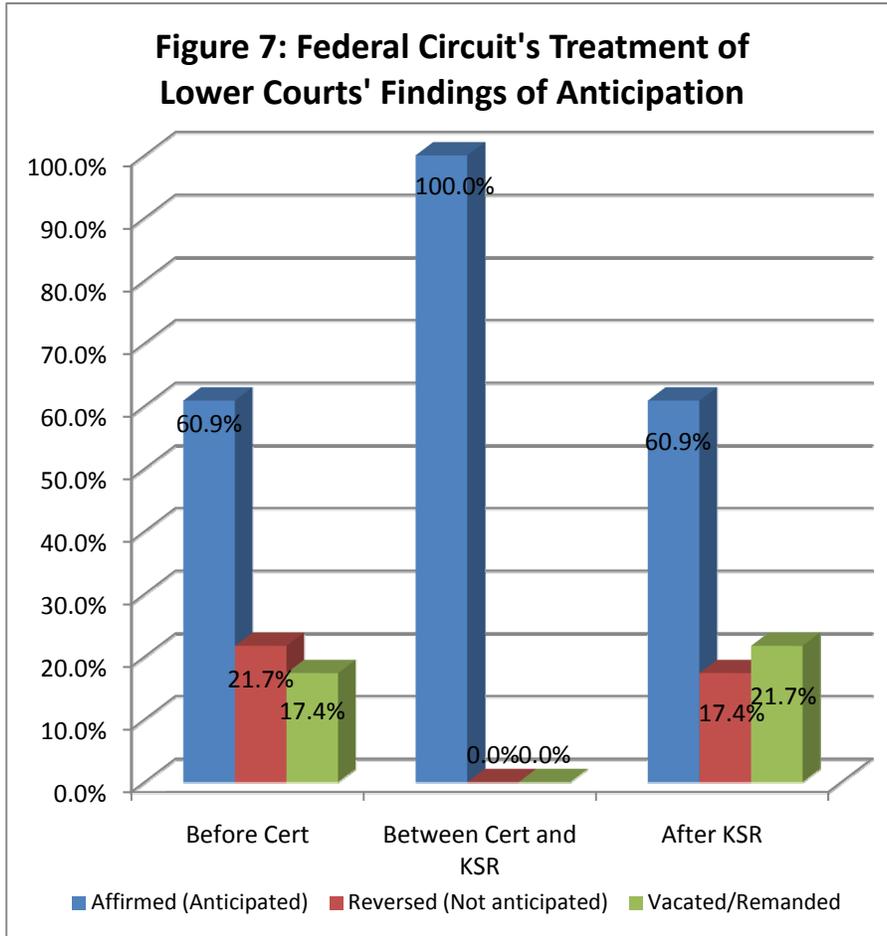


Figure 7: Federal Circuit’s treatment of lower courts’ finding of anticipation where the lower court had concluded claims are anticipated.

As Figure 7 indicates, exactly similar to what happened with respect to obviousness, the Federal Circuit affirmed 100% of the lower courts’ rulings of anticipation in the middle period.

Figure 8 shows how the Federal Circuit handled the lower courts’ findings where patents were found to be not anticipated.

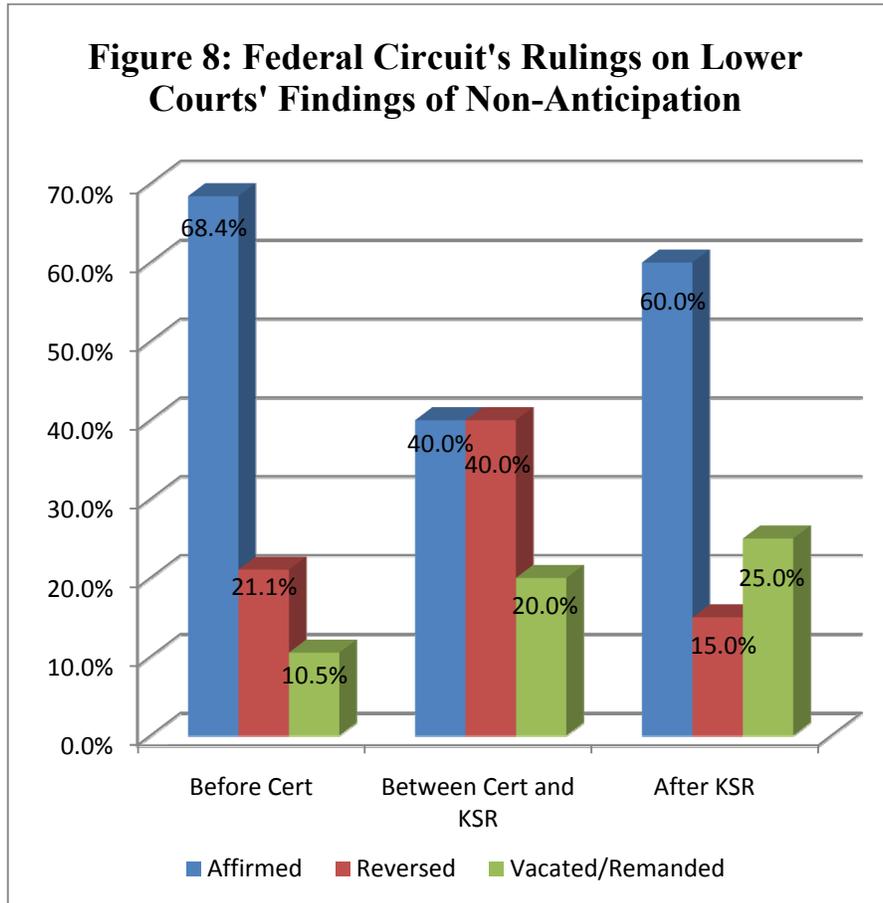


Figure 8: The Federal Circuit's rulings on lower courts' findings of no-anticipation.

As shown in Figure 8, it became almost twice more likely for the Federal Circuit to reverse or vacate a finding of validity with respect to anticipation after cert. was granted. Similarly, the Federal Circuit was less inclined to affirm non-anticipation after cert. was granted. The rates reverted back to the pre-cert. numbers after the Supreme Court decided *KSR*.

To summarize, the Supreme Court's granting of cert. to *KSR* created very similar effects on the Federal Circuit's anticipation decisions compared to those on obviousness. While petition was pending, the Federal Circuit became much more likely to invalidate a patent—whether for obviousness or for anticipation. The Federal Circuit affirmed 100% of decisions where a lower court had invalidated a patent, either for anticipation or for

obviousness. The Federal Circuit was also much less likely to affirm a finding of validity in the face of an anticipation challenge after cert. was granted; a similar trend existed in obviousness. It is notable, however, that while the obviousness bar remained elevated compared to the pre-cert. times, the anticipation bar reverted back to its pre-cert. days after the Supreme Court announced its decision for *KSR*.

These findings should come as a great surprise, although at least they point in the same direction consistent with the explanations this article offered on how *KSR* affected the law of obviousness. The Federal Circuit, sensitive to criticisms about its alleged pro-patent tendencies, reacted and became more likely to invalidate patents as a result of the Supreme Court's decision to look into the Federal Circuit's invalidity doctrine. That anticipation was affected similarly to obviousness goes further to demonstrate that the effects of *KSR* went much beyond the literal command of the decision.

#### *D. The Federal Circuit Responds to Criticism*

Whether the Federal Circuit's reaction to *KSR* is a welcome or disturbing sign is open to debate. On the one hand, the Federal Circuit's reaction demonstrates that the court pays attention to its critics.<sup>103</sup> In particular, to the extent that allegations of the Federal Circuit's being too pro-patent originated in academia,<sup>104</sup> the reaction to *KSR* is an indication that the Federal Circuit pays attention to academic scholarship on patent law despite some suggestions to the contrary.<sup>105</sup> Given that the Federal Circuit has

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<sup>103</sup> In a law review article, Judge Linn acknowledges that at one time the Federal Circuit was accused of being pro-patent for making it harder to render patents obvious. Hon. Richard Linn, *The Future Role of the United States Court of Appeals for the Federal Circuit Now that it Has Turned 21*, 53 AM. U. L. REV. 731, 733 (2004).

<sup>104</sup> Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 26 (1989) (" [The Federal Circuit] has taken on a decidedly pro-patent bias"); Allan N. Litmann, *Restoring the Balance of Our Patent System*, 37 IDEA 545, 545 (1997) ("[T]he neutral balance between patent holders and the public domain created by the constitutional and statutory system has been shifted by the United States Court of Appeals for the Federal Circuit to one that unduly favors the patent holder . . ."); cf., Meredith Martin Addy, *Is the Federal Circuit Prepared to Accept Plenary Authority for Patent Appeals?*, 4 J. MARSHALL REV. INTELL. PROP. L. 583, 586 (2005) (suggesting that the concern over the Federal Circuit's being too pro-patent and issuing too many low-quality patents is a "red herring").

<sup>105</sup> See, e.g., Craig Allen Nard, *Toward a Cautious Approach to Obeisance: The Role of Scholarship in Federal Circuit Patent Law Jurisprudence*, 39 HOUS.

exclusive jurisdiction over patent law disputes, its opinions do not compete with those of any other circuits.<sup>106</sup> Moreover, the Supreme Court does not and cannot review a sizeable portion of the Federal Circuit's opinions each year. Compared to other appellate courts, the Federal Circuit may be in higher need for "a window on the world" which law professors and others who review its work informally can provide.<sup>107</sup> The Federal Circuit's reaction to *KSR* may be a welcome sign that the court does pay attention to what goes on in the world around it and how its critics evaluate its performance.

On the other hand, the type of reaction that this study has uncovered is unlike the traditional way courts usually import information from academia into their opinions, *i.e.*, by way of reference to law review articles or other types of scholarship.<sup>108</sup> Unlike that traditional method, the reaction observed in this article does not leave a paper trail that future litigants and patent law scholars can easily study and evaluate. The systematic and significant effect of *KSR* in the law of obviousness (and its transient effect after cert. on both obviousness and anticipation) was most likely not noticeable to the members of the bar or law professors (in the absence of studies such as this one). Yet, the effect was profound and crucial to the rights of patent law litigants. For example, statistically speaking, a patentee appealing a lower court's ruling of invalidity against his patent (either for obviousness or for anticipation) had a 0% chance of winning his appeal during the period in which *KSR* was pending before the Supreme Court.<sup>109</sup> That the Federal Circuit went through such a drastic transformation merely because a cert. was granted without providing any opportunity

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L. REV. 667, 676–83 (analyzing the content of Federal Circuit opinions and concluding that, for the most part, legal scholarship does not find its way into the court's opinions as often as it should).

<sup>106</sup> 21 C.J.S. *Courts* § 277 (2009).

<sup>107</sup> Nard, *supra* note 105, at 669.

<sup>108</sup> See Joseph E. Brooks, *Jurisprudence: The "New Haven School" and the Emergence of Secondary Authority-Is Number Two Trying Harder?* 41 FLA. L. REV. 1031, 1041–46 (1989).

<sup>109</sup> Of course, the author does not suggest that the outcome of cases were predetermined for any given case before they were even heard. Such suggestion would be both incorrect and unfair to the integrity of our judicial system. Outcome of any given case is not statistically related to the outcome of another. Moreover, judges undoubtedly do their best to arrive at the right conclusion given any one particular case. The statistics offered here only work to interpret trends in the past, and they do not predict what may happen in the future.

for all those interested to recognize the change adds a great degree of uncertainty about how the court decides cases, and what parties can do to accurately predict the likelihood of success in court.

Even more distressing, the phenomenon observed here raises serious question about how the law operates in general. Nothing about obviousness changed the day the Supreme Court granted cert. to *KSR*. And nothing about anticipation was even about to change. Even after *KSR* was decided, scholars could not agree whether the opinion went far enough to raise the patentability bar, as many thought that to be a good idea. As far as the text of opinions matter, even after *KSR* was decided, the law of obviousness did not change by much. All that “theory,” however, seems quite irrelevant in light of the statistics presented here. In fact, *KSR*, a case about obviousness, shook the ground so hard that even anticiaption rulings were affected for a short period of time. More troubling still, the strongest influence occurred before *KSR* was even decided. Attorneys spend hours on the text of precedential opinions in search for “the law” on the theory that “the law” matters. The statistics presented in this article, however, may suggest “the law” reflected in the text of precedents might matter much less than some believe.

#### V. CONCLUSION

This article provided statistical evidence that demonstrates *KSR* has had a significant impact on the law of obviousness. District courts, which were studied in this article, are over seven times more likely to find patents obvious as a result of *KSR*. The Federal Circuit is also more likely (from 40% to 57%) to find a patent obvious on review.

Moreover, this article reported that the Federal Circuit reacted to the Supreme Court’s granting of cert. to *KSR* by raising the patentability bar for obviousness as well as anticipation while *KSR* was pending before the Supreme Court. On the one hand, this reaction is a welcome sign that the court pays attention to its critics, especially in the academic world. On the other hand, the trend raises alarming questions about how much attorneys and scholars can rely on the text of precedential opinions in order to understand their rights in particular and how the system operates in general.