Patent Reform in the Courts and Congress

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Introduction and Executive Summary

Reforming the patent system is important. Patents are critical to innovation, and the patent system generally works well in encouraging invention. But the system also has problems, and has been the subject of abuse in recent years. As data from the Stanford IP Litigation Clearinghouse shows, patent owners sued more defendants in 2007 and 2008 than ever before, even though the total number of suits remained roughly constant. Further, research using clearinghouse data demonstrates that the majority of the most-litigated patents are owned by entities that do not make any product, but simply enforce patents. *See* John R. Allison et al., *Extreme Value or Trolls on Top: Evidence from the Most-Litigated Patents,* forthcoming U. Penn. L. Rev.

There is nothing inherently wrong with either the growth in patent lawsuits or in patent enforcement by non-practicing entities. But a number of patent rules have given those plaintiffs unfair advantages in litigation, allowing them to enforce dubious patents in favorable jurisdictions, and to use the rules of patent remedies to obtain more money than their inventions were actually worth. Many of those problems resulted from troublesome judicial interpretations of the Patent Act, rather than from the Act itself.

Since Congress began debating patent reform four years ago, the courts have acted to fix a number of the most significant problems that were the focus of initial Congressional interest:

- The Supreme Court decision in *eBay v. MercExchange* ended the Federal Circuit's practice of automatically granting injunctions in patent cases, replacing it with a case-by-case determination that (despite occasional aberrations such as *Voda v. Cordis*) has worked quite well in ensuring that patent owners who need injunctions can get them, but that patent owners who want an injunction merely to increase their settlement leverage by threatening to shut down unpatented components cannot.

- The Supreme Court decision in *KSR v. Teleflex* revamped the standard of obviousness to focus it more directly on what scientists working in the field would actually know and do, rather than on a fruitless search for documents stating the obvious. While the jury is still out on the application of *KSR* in the Federal Circuit, there is good reason to believe that it has helped weed out bad patents by giving district courts the power to grant summary judgment of obviousness in appropriate cases.
- The Supreme Court decision in *MedImmune v. Genentech* rejected in a footnote the Federal Circuit's "reasonable apprehension of imminent suit" test for declaratory judgment jurisdiction. Since that time, the Federal Circuit has adopted a much more generous standard for declaratory judgment jurisdiction in cases like *SanDisk v. STMicroelectronics* and *Teva v. Novartis*. That more generous standard permits accused but not-yet-sued infringers to file a declaratory judgment when the continuing possibility of infringement litigation, avoiding the "patents of Damocles" problem and giving patent defendants, not just plaintiffs, a say in where patent lawsuits are filed.
- The Fifth Circuit en banc decision in *Volkswagen*, coupled with the Federal Circuit decision in *In re TS Tech USA Corp.*, have made it significantly harder for patent plaintiffs to choose any forum in the country on the basis of its perceived friendliness to patent owners. While these cases are quite recent, they may ultimately go a long way towards solving the problem of forum shopping by considering the convenience of different districts in deciding whether to transfer venue in a patent case.
- The Federal Circuit en banc decision in *In re Seagate Technology* significantly reduced problems with the doctrine of willfulness by creating a new test for willful infringement ("objective recklessness") and by creating rules designed to preserve the attorney-client privilege in cases involving willfulness.

- Federal Circuit decisions in the last year or two, notably *Star Scientific v. R.J. Reynolds Tobacco*, have drawn an increasingly careful line on inequitable conduct, finding it where there was egregious conduct but emphasizing and strengthening the need to prove that the patentee intended to deceive the PTO. While there may have been excesses with inequitable conduct in the past, the doctrine itself serves a valuable purpose in preventing some very real cases of deception by attorneys or patent owners.

The combined result of these cases is to simplify the task of legislative patent reform considerably. There remains one significant judicially-created problem with litigation abuse of the patent system that Congress should address: the problem of damages calculation in reasonable royalty cases. And it is possible that the Federal Circuit will address that problem in a pending case, *Alcatel v. Gateway*. In addition, a new Federal Circuit en banc decision (*In re Bilski*) creates a potential new problem that deserves attention by restricting the scope of patentable subject matter. In particular, the effect of *Bilski* on patents for medical diagnostic processes is uncertain but potentially worrisome.

Apart from reasonable royalty damages, and possibly venue and patentable subject matter, patent reform in 2009 can focus on issues that clearly require statutory change rather than correction of judicial decisions. The most important of these changes are the institution of some form of post-grant opposition, the move to a first-inventor-to-file system, and the establishment of rule-making authority at the Patent and Trademark Office.

In the sections that follow I discuss each of these issues in more detail.

Publication and Post-Grant Opposition

Summary: Requiring publication of all patent applications and creating a post-grant opposition system are important changes that will improve the patent system.

The first goal of patent reform should be to ensure that the procedures in the Patent and Trademark Office are adequate to identify and weed out bad patents when it is cost-effective to do so. Two proposed changes will help.

First, it is important that the patent system require prompt publication of *all* U.S. patent applications. Section 122(b) currently permits some patent applications to avoid publication, with the result that some applicants can conceal their invention from the public for years. Those applicants can then take a mature industry by surprise when the patent issues. Requiring publication of all applications 18 months after they are filed will put the public on notice of who claims to own particular inventions, allowing companies to make informed research, development and investment decisions. Unfortunately, S. 515, unlike prior efforts at patent reform, does not appear to contain such a provision.

Second, the patent system should provide low-cost mechanisms for resolving the validity of disputed patents without litigation. Properly-designed administrative systems are a valuable addition to the patent system that will help identify and weed out bad patents without the cost and uncertainty of litigation. S. 515 would permit the submission of prior art by third parties, and would improve the inter partes reexamination system by permitting competitors to initiate reexaminations without foregoing their day in court. These changes are desirable and will improve the patent system.

S. 515 also provides for a post-grant opposition system. Post-grant opposition in general is desirable, since it provides a level of scrutiny somewhere between reexamination and litigation. The best approach is one that permits a post-grant opposition to be filed either within 12 months after a patent issues or within 6 months after the opposer is notified of infringement, whichever comes later. The addition of the second, 6-month window has been controversial in some circumstances, but it is critical to the success of the post-grant opposition procedure. Because of the long timelines associated with many patents, and the fact that those engaged in patent holdup often wait for years after patents issue before asserting them, limiting opposers to a 9-month window after the patent issued would render post-grant opposition ineffective for the majority of patents. An example is pharmaceutical patents. Because of the long FDA approval process, potential generic manufacturers will likely have no idea at the time a patent issues whether the drug it covers will survive clinical trials and be approved for sale. By the time they know which patents are actually important, it would be too late to oppose them. This problem extends to other industries as well. Submarine patentees and other trolls often sit on patent rights for many years before asserting them against manufacturers. In order to take advantage of the nine-month window, those manufacturers would have to guess which of the millions of patents in force might become important a decade from now. Since only 1% of patents are ever litigated, forcing them to make such a guess would make the system worthless to most of the people who might want to use it.

Including a second window for defendants who were not on notice of the patent when it issued seems an appropriate way to solve this problem. This gives a short period in which to oppose patents once they are brought to a company's attention, without permitting undue delay. To minimize the harm to patent owners whose rights are subject to later challenge, a second window for post-grant review should be useable only by those parties who could not reasonably have used the first window, either because they were not in business, not making a relevant product at the time, or could not reasonably have found the patent and known that it applied to their product during the first window. It may also be appropriate to raise the burden of proof on challengers during the second window. Unfortunately, S. 515 as currently drafted includes only a first window. As a result, while the template for post-grant opposition is quite good, it is unlikely that post-grant opposition as currently configured will get much use.

Damages: Reasonable Royalty and Willfulness

Summary: Changes to the entire market value rule and royalty stacking in reasonable royalty damages are important steps that will help deal with serious problems in the patent system.

The reasonable royalty provisions in existing law create significant problems in those industries in which patented inventions relate not to an entire product, but to a small component of a larger product. Because courts have interpreted the reasonable royalty provision to require the award of royalties based on the "entire market value," juries tend to award royalty rates that don't take into account all of the other, unpatented components of the defendant's product. This in turn encourages patent owners in those component industries to seek and obtain damages or settlements that far exceed the actual contribution of the patent. There are numerous cases of just this problem occurring. Most notably, there are hundreds of "essential" patents covering proposed new standards for third-generation wireless telephones. Carl Shapiro and I have published an empirical study of this "royalty stacking problem." Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007). And as that study demonstrates, the royalties awarded in court far exceed what most licensing experts would consider a reasonable royalty, particularly for inventions that represent only one small component of a larger product.

The broad outlines of how to solve this problem are clear. Congress should require the courts to consider the contribution of other elements of the defendant's product, not just the patented invention. Reasonable royalty damages should be limited to the share of a product's value that comes from the invention, and that patentees should not be able to capture value they did not in fact contribute. This is the "apportionment principle," and it is critical in preventing patentees from holding up defendants, trying to capture as damages value actually contributed by the defendant or by other inventors. At the same time, patentees should be entitled to capture the value they actually contribute, whether that value resides in a specific component, in a general improvement to the functionality of the product, or in a reduction in the cost of manufacturing that product. The apportionment principle has been well-established in Supreme Court jurisprudence for over a century, but unfortunately Federal Circuit decisions have departed from that principle.

The only question is how to get there. Congress should implement the apportionment principle in a way that prevents patentees from manipulating their damages by changing the way they claim their invention. For example, the inventor of the intermittent windshield wiper could claim the wiper alone, or alternatively could choose to claim a car including an intermittent windshield wiper. The invention is the same, and the patentee shouldn't be able to capture more money by phrasing the claim in the second way than the first. But the current damages rules may produce just such an effect, since the "claimed invention" is literally the whole car and not just the windshield wiper.

The straightforward way is to require courts to determine the value of the "inventive contribution" of the product in reasonable royalty cases. Damages reform should also make it clear that the "entire market value rule" has no place in reasonable royalty as opposed to lost profits analysis. A patentee who sells products can use the entire market value rule to prove that they would have made the sale but for the defendant's infringement. A patentee who does not sell products can make no such showing, however. Awarding a non-practicing patentee the entire market value of a defendant's product based on their invention of just one component by definition overcompensates that patentee, and requires the defendant to pay everything it makes to one patentee, and then to pay additional money to other patentees. I elaborate on this problem, and on the proper analysis of reasonable royalties and lost profits in the attached paper, "Distinguishing Between Lost Profits and Reasonable Royalties in Patent Cases."

S. 515 makes some steps in the right direction, but also includes a provision that would lock the entire market value rule into the reasonable royalty damages calculus. That would be unfortunate, particularly since it is possible (though by no means certain) that the Federal

Circuit will address this problem later this year in the *Lucent v. Gateway* case. Subsection (a) dealing with the entire market value rule should be removed from the bill, or at a minimum should be amended to make it clear that a patentee is entitled to damages based on the entire market value rule only if the patentee can show that it would have made the sale of the entire product but for the infringement.

Senator Specter has suggested that Congress might be well-advised to wait in resolving the damages issue until the Federal Circuit has had a chance to act. There is logic to this, given that the courts have solved many of the other problems their prior decisions had created. But apportionment is the most important part of any patent reform legislation, and Congress should make sure that any such delay will not jeopardize the passage of damages reform legislation. As long as the bill does not lock in the entire market value rule, any judicial reform of reasonable royalty damages would be in line with the rest of what S. 515 proposes. In short, Congress should take care not to change damages law in a way that prevents effective Federal Circuit or Supreme Court reform, but changes that restore apportionment should not create an interference problem.

First Inventor to File

Summary: This is an important change, but should be accompanied by provisions requiring publication of all patent applications and expansion of prior user rights.

The move to a first-inventor-to-file system is an important step for several reasons. First, it simplifies the complex of rules for deciding whether a patent applicant is the first inventor. One way a focus on the filing date simplifies things is to eliminate the need to determine when an invention occurred in the vast majority of cases, an inquiry that has proven difficult. But the move to first to file also gives Congress an opportunity to get rid of confusing rules that add uncertainty to the patent system: the "secret prior art" rules governing commercial but nonpublic use, and that differ depending on whether the user is the patentee or not. These rules have created inconsistent judicial guidance and made it hard to know when an inventor was entitled to a patent.

Second, first inventor to file recognizes the international nature of today's markets. The current statute defines prior art differently depending on whether a sale or a conference occurs in the U.S., Canada or Europe. Eliminating this distinction makes sense in the modern world. Because the rest of the world already uses filing rather than invention date to measure priority, first inventor to file will take an important step towards global harmonization, permitting U.S. inventors to more easily seek patent protection not just in the U.S. but in other countries as well. S. 515 also recognizes the global nature of commerce by getting rid of the old-fashioned prior art rules limited to conduct in a particular country.

In the past, small inventors have expressed concern that a first to file system will disadvantage them because large companies have the resources to file patents more quickly. More recent evidence demonstrates that that is not true. It is large inventors, not small inventors, who most benefit from the complex and expensive interference system that determines who was first to invent. And large inventors challenge the patents of small inventors in an interference proceeding more often than the reverse. Eliminating interferences will help, not hurt, small inventors.

The best approach – and the one adopted by S. 515 would deviate from a pure first-to-file system by giving inventors who sell, use or publish their invention a year to get a patent application on file. This is a reasonable grace period. A small inventor concerned about losing a race to the patent office can publish the invention on a Web site. Doing so will prevent anyone else from getting a patent, while giving the inventor a year to find a patent attorney and file a patent application. Given the existence of simple provisional applications, that is a reasonable accommodation. S. 515 expands this grace period compared to prior versions of the bill by providing what is in effect a "first inventor to publish or file" rule. If an inventor publishes first, he or she has a year to file the patent application and claim priority even over those who independently invent but file after that publication date. That provision protects inventors against those who would steal their ideas and seek to file first.

If Congress is to move to first inventor to file, it should also provide prior user rights for those who engage in non-public use before the patentee files his application. S. 515 eliminates many existing categories of non-public prior art. Doing so risks permitting more, not fewer, patents to issue to people who were not truly the first inventor. Granting prior user rights to those who were already using the invention is a reasonable counterweight, because it gives the owners of such secret prior art at least the right to continue using technology they invented. Modifying 35 U.S.C. § 273 can address this concern by expanding a limited right that has been in the law for six years without creating any problems.

Venue and Interlocutory Appeal

Summary: Forum shopping has been a significant concern for the last several years. While court decisions may well solve the problem, proper legislative reform can assist in that effort. Interlocutory appeals, by contrast, are likely to prolong patent litigation and its uncertainty.

Plaintiffs in patent cases can file suit in any district in the country. Data from the Stanford IP Litigation Clearinghouse makes it clear that patentees have engaged in significant forum shopping, taking advantage of the high percentage of pro-patentee verdicts in the Eastern District of Texas and the high percentage of cases that survive summary judgment in the District of Delaware. *See* http://lexmachina.stanford.edu. Similarly, declaratory judgment plaintiffs choose for a known for lower patentee win rates and longer times to trial, such as the Northern District of California. The Eastern District of Texas in particular has proven unwilling to transfer cases to other districts in the interest of convenience.

Recent decisions by the Fifth Circuit en banc and the Federal Circuit require the Eastern District of Texas to transfer cases to more appropriate fora when they exist. Those decisions may well solve the forum shopping problem, if they are implemented fully at the district court. But the law provides that plaintiffs can file in any district, and district courts still have substantial discretion in deciding whether to keep cases. Further, the *Volkswagen* and *TS Tech* cases apply only to cases filed in the Fifth Circuit, not in other jurisdictions. As a result, it may be appropriate to restrict venue.

How to do so is more problematic. S. 515 rightly limits venue to places where the plaintiff or the defendant reside or have a significant place of business. And the provision preventing the artificial manufacture of venue is helpful. It seems problematic, however, to try to deny venue to certain types of patent plaintiffs while maintaining it for others. It is preferable to rely on transfer rules in cases where the plaintiffs file in inconvenient jurisdictions.

Such an approach will not eliminate all forum shopping by patentees or accused infringers. But it should reduce the problem to manageable proportions.

I am more troubled by giving district courts the power to approve interlocutory appeals of claim construction orders. Most claim construction orders result in summary judgment for one side or the other on infringement. While interlocutory appeal would prevent some unnecessary jury trials, the number of such trials every year is small, and there is a risk that district courts will permit interlocutory appeal and stay in virtually every case, adding a year or two to each case, burdening the Federal Circuit with new cases, and delaying the patentee's ultimate relief. Further, because parties often settle after a *Markman* ruling, the prospect of interlocutory appeal may increase the cost of litigation by delaying settlement pending that appeal. If the provision remains in the bill, it would be helpful to limit it to extraordinary circumstances, such as ones in which the district court identifies particular close claim construction questions that would ultimately resolve the case.

Distinguishing Lost Profits From Reasonable Royalties[1]

Mark A. Lemley[2]

Patent damages are designed to compensate patentees for their losses, not to punish accused infringers or require them to disgorge their profits.[3] The statute provides for damages "adequate to compensate for the infringement, but in no event less than a reasonable royalty."[4] Courts interpreting this provision have divided patent damages into two groups – lost profits, available to patent owners who would have made sales in the absence of infringement, and reasonable royalties, available to everyone else.[5] Traditionally, patentees want to prove lost profits, because only that measure captures the monopoly value of exclusion of competitors from the market. As the statutory language suggests, reasonable royalties exist as a floor or backstop for those who cannot prove that they have lost profits as a result of infringement. The rationale is that an infringed patent is valuable, and could be licensed for a fee even by patent owners who don't employ the patent in the marketplace.

In practice, however, the lines between lost profits and reasonable royalties are blurring. In significant part this is because courts have insisted on strict standards of proof for entitlement to lost profits. Specifically, patentees must prove demand for the patented product, the absence of noninfringing substitutes, the ability to meet additional demand in the absence of

2 William H. Neukom Professor, Stanford Law School; partner, Durie Tangri LLP. Thanks to Rose Hagan for comments on a prior draft.

3 Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1223 (Fed. Cir. 1995).

4 35 U.S.C. § 283. A separate provision of the patent statute, 35 U.S.C. § 284, provides for punitive damages in case of willfulness. *In re* Seagate Technology, 497 F.3d 1360 (Fed. Cir. 2007) (en banc).

5 *See* Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152 (6th Cir. 1978) ("When actual damages, e.g., lost profits, cannot be proved, the patent owner is entitled to a reasonable royalty.").

infringement, and the proportion of those sales that represent profits.[6] This in turn means that many patent owners who have in fact probably lost sales to infringement cannot prove lost profits damages, and turn to the reasonable royalty measure. The result is that courts have distorted the reasonable royalty measure in various ways, adding "kickers" to increase damages, artificially raising the reasonable royalty rate, or importing inapposite concepts like the "entire market value rule" in an effort to compensate patent owners whose real remedy probably should have been in the lost profits category. Unfortunately, Congress now seems poised to lock one of those distortions – the entire market value rule – into reasonable royalty law.

In Part I, I explain the strict requirements for proving lost profits, and give examples of patentees who have failed to meet these requirements. In Part II, I explain how relegating these patentees to reasonable royalties has led to problematic changes in reasonable royalty law. Finally, I suggest in Part III that courts should draw a sharp division between the injury suffered by patentees who compete with infringers and those who do not. Patentees who compete should be entitled to the best estimate of lost profits, even if not all elements of proof are available. Doing so will avoid overcompensating patent owners in reasonable royalty cases.

I. Losing Entitlement to Lost Profits

The traditional conception of patent protection is to give patent owners a means of excluding competitors from selling the patented product in order to increase their profits, and therefore the incentive of putative patent owners to invent. This traditional conception requires exclusivity. It explains why the normal remedy for infringement of a patent is an injunction against continued infringement.

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6 *Id.* at __.

Lost profits fit logically with this traditional conception. Giving patentees the profits they would have made absent the infringement effectively puts them in the same position as if they had had an injunction in place all along.[7] To the extent that it doesn't – when a patentee lost market traction early in a growing market and never built market share, for example – the law of lost profits has expanded over time to try to compensate the patent owner for those uses.[8]

Proving lost profits has not been easy, however. Federal Circuit law requires that the prevailing patentee prove (1) the extent of demand for the patented product, (2) the absence of non-infringing substitutes for that product, (3) the patentee's ability to meet the additional demand by expanding manufacturing capacity, and (4) the extent of profits the patentee would have made.[9] Further, the cases require sophisticated economic analysis of the interrelationship between price and demand, so that claims of price erosion must be discounted to the extent that the higher prices a patentee could have charged absent competition would have driven away some consumers.[10] And they require inquiry into how the patentee would divide sales with other companies in the market that were either licensed or were selling non-infringing goods.[11]

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[7] The Supreme Court has described this as the purpose of patent damages. Aro Mfg. Co. v. Convertible Top Replacement Co., 377 U.S. 476, 507 (1964) ("that question is primarily: had the Infringer not infringed, what would Patent Holder-Licensee have made?"); Yale Lock Mfg. Co. v. Sargent, 117 U.S. 536, 552 (1886) (a patentee's damages are "the difference between his pecuniary condition after the infringement, and what his condition would have been if the infringement had not occurred."); John Schlicher, *Measuring Patent Damages by the Market Value of Inventions – the Grain Processing, Rite-Hite, and Aro Rules*, 82 **J. Pat. & Trademark Ofc. Soc'y** 503, 503 (2000).

[8] *See, e.g.,* Lam, Inc. v. Johns-Manville Corp., 718 F.2d 1056, 1065 (Fed. Cir. 1983) (awarding lost profits damages based on the patentee's lost ability to grow, and therefore to sell other, unpatented products).

[9] *See, e.g.,* Panduit Corp. v. Stahlin Bros. Fibre Works, 575 F.2d 1152 (6th Cir. 1978). The Federal Circuit has adopted this framework as the predominant, though not exclusive, way to analyze lost profits. Gyromat Corp. v. Champion Spark Plug Co., 735 F.2d 549 (Fed. Cir. 1984).

[10] *See, e.g.,* Crystal Semiconductor Corp. v. Tritech Microelectronics Int'l, 246 F.3d 1336 (Fed. Cir. 2001).

[11] There are a number of ways courts assess this, including expert testimony, the testimony of the infringer's customers as to what they would have done absent infringement, and a presumption that where

Courts take these requirements seriously, and quite often reject claims for lost profits. To begin, it should be obvious from these requirements that patentees cannot possibly meet them unless they participate in the market in direct competition with the infringer.[12] Even competitors often have trouble demonstrating entitlement to lost profits, however. Sometimes this is because they really didn't lose any profits, for example because purchasers didn't value the patented technology at all and would happily have switched to non-infringing substitutes.[13] Other times it is because the patentee itself couldn't have manufactured the products, and therefore lost the sales.[14] But still other cases involve more technical failures of proof, for example a failure to

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the patentee competes with non-infringing alternatives, the patentee and the competitors would split the infringer's sales. *See* State Indus. v. Mor-Flo Indus., 883 F.2d 1573 (Fed. Cir. 1989) (applying this "market share rule").

[12] BIC Leisure Prods. v. Windsurfing Int'l, 1 F.3d 1214 (Fed. Cir. 1993) (reversing an award of lost profits because the patentee and the infringer did not compete); *Cf.* Del Mar Avionics, Inc. v. Quiniton Instrument Co., 836 F.2d 1320 (Fed. Cir. 1987) (describing it as a "general rule" that patentees producing the patented item are entitled to lost profits damages); John E. Dubiansky, *An Analysis for the Valuation of Venture Capital-Funded Startup Firm Patents,* 12 **B.U. J. Sci. & Tech. L.** 170, 177 (2006) ("In the licensing context, however, the patent owner is not engaged in an enterprise which utilizes the patent. Consequentially, the owner has no profits to have lost, and is only eligible to receive a reasonable royalty.").

[13] For examples, *see* Grain Processing Corp. v. American Maize Prods. Co., 185 F.3d 1341 (Fed. Cir. 1999) (rejecting lost profits claim because evidence showed that patentee would not have made sales; infringers would have switched almost immediately to an equally-good non-infringing alternative); Slimfold Mfg. Co. v. Kinkead Indus., Inc., 932 F.2d 1453 (Fed. Cir. 1991); *but see* Zygo Corp. v. Wyko Corp., 79 F.3d 1563, 1571 (Fed. Cir. 1996) (seeming to set a flat rule preventing consideration of non-infringing substitutes not actually on the market at the time of infringement); *compare* Micro Chemical Inc. v. Lextron, Inc., 318 F.3d 1119, 1123 (Fed. Cir. 2003) (rejecting a claim for the availability of easy design-arounds where the evidence suggested the design-around would not have been straightforward at the time of infringement).

Hausman et al suggest that considering non-infringing substitutes unfairly gives the infringer the benefit of a free option to infringe or not. Hausman et al., *supra* note __, at 845-46. To the contrary, the option comes at a price – the payment of the greater of lost profits, if proven, or a reasonable royalty. Cases like *Grain Processing* eliminate what would otherwise have been an overcharge – the ability of the patentee to recover in damages profits it would not have made in fact – rendering lost profits damages more consistent with their compensatory purpose.

[14] *See, e.g.,* Datascope Corp. v. SMEC, Inc., 879 F.2d 820 (Fed. Cir. 1989) (rejecting lost profits claim because there was no evidence that the patentee would in fact have devoted resources to meeting the demand for the infringer's product). A strict application of this rule would overlook the ability of the patentee to license others to meet that demand. *Cf.* Yarway Corp. v. Eur-Control USA, 775 F.2d 268, 276

adequately segregate profits from costs or a lack of economic sophistication in analyzing market demand and its elasticity.[15]

A dramatic example is the foundational case on patent damages, *Panduit v. Stahlin.*[16] In that case, authored by Judge Markey, later Chief Judge of the Federal Circuit, the court found that the patentee had proven demand for the patented product, an absence of non-infringing substitutes, and the ability to exploit the demand and therefore to make the sales. Nonetheless, the court held that the patentee was not entitled to lost profits because it did not adequately separate profits from costs. There was no dispute that Panduit accounted for variable costs, and that it tried to exclude fixed costs as well. But expert witnesses testified to contradictory views of the correct way to account for such fixed costs, and the court concluded that because it couldn't be sure what fixed costs to include, it had to reject the lost profits claim altogether in favor of a reasonable royalty.

Once a patentee proves entitlement to lost profits, the scope of the resulting award can be quite expansive. Patentees can recoup losses on sales they in fact made if they can prove that they were forced to lower their prices to meet infringing competition.[17] They can capture sales

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(Fed. Cir. 1985) (permitting evidence of subcontracting to a sister company).

[15] *See, e.g., Panduit*, 575 F.2d at __ (refusing to award lost profits because of a failure by the patentee to account properly for fixed costs to be deducted from profits); Slimfold Mfg. Co. v. Kinkead Indus., 932 F.2d 1453, 1458 (Fed. Cir. 1991) (affirming refusal to award lost profits on estimated on a market share basis despite evidence that the patentee competed with others in the market in which the infringer participated); Kaufman Co. v. Lantech, Inc., 926 F.2d 1136 (Fed. Cir. 1991) (rejecting claim for convoyed sales, in part because the patentee did not prevent evidence of projected profits from those sales).

[16] 575 F.2d at 1152.

[17] Brooktree Corp. v. Advanced Micro Devices, Inc., 977 F.2d 1555, 1580 (Fed. Cir. 1992) (affirming award of price erosion damages); Paper Converting Mach. Corp. v. Magna-Graphics Corp., 745 F.2d 11, 22 (Fed. Cir. 1984) (award of losses based on projected declining marginal cost of producing goods as scale increased).

on unpatented goods that compete with the patented invention.[18] They are entitled to capture the value of sales of entire products based on a patent on only a single component, if they can prove that the patented feature is what caused the sale, so that the defendant's infringement garnered a sale that would otherwise have gone to the patentee.[19] This is known as the entire market value rule. They are entitled to capture profits based on the sale of "convoyed goods" – goods that are not part of the patented product at all, but which are sold in connection with the patented good, and would therefore likely have been sold by the patentee if the patentee rather than the infringer had made the sale of the infringing good.[20] And they are even entitled to capture sales by the defendant after the patent has expired, if those sales were made possible by infringing preparatory activity by the defendant during the term of the patent.[21]

The effect of these rules is generally salutary: lost profits doctrine aims to put patentees in the position they would have been in but for the infringement, and the tools the law uses to accomplish this end are economically quite sophisticated. But the high standard of proof means that there are a number of patentees that do not in fact get made whole for the acts of infringement under the lost profits rule.

II. Are Reasonable Royalties Reasonable?

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[18] King Instruments Corp. v. Perego, 65 F.3d 941, 953 (Fed. Cir. 1995).

[19] *See, e.g., State Indus.*, 883 F.2d at __; TWM Mfg. Co. v. Dura Corp., 789 F.2d 895, 901 (Fed. Cir. 1986); Kori Corp. v. Wilco Marsh Buggies & Draglines, Inc., 761 F.2d 649, 656 (Fed. Cir. 1985); King Instrument Corp. v. Otari Corp., 767 F.2d 853, 865 (Fed. Cir. 1985).

[20] *See, e.g.,* Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538 (Fed. Cir. 1995) (en banc).

[21] BIC Leisure Prods. v. Windsurfing Int'l, 687 F. Supp. 134, 137-38 (S.D.N.Y. 1988), *rev'd in part on other grounds* 1 F.3d 1214 (Fed. Cir. 1993) (permitting recovery for "accelerated market reentry" by the infringer after the patent expires)

Patentees who cannot prove lost profits, whether because they didn't have any lost profits or because they failed to meet the standards of proof, are relegated to a "reasonable royalty" remedy. Reasonable royalties are like lost profits in that both are designed to compensate patentees for their losses. But there the similarity ends. Reasonable royalty law is designed with the non-manufacturing patentee in mind. And what it takes to "make the patentee whole" is very different if the patentee's only interest is in licensing the patent than if the patentee's interest is in excluding competition and maintaining a monopoly price. Thus, reasonable royalty case law inquires into what the marketplace would actually pay for rights to the technology, bearing in mind that the licensee has to make a profit as well. By contrast, it is not only possible but common that lost profits will exceed the defendant's gains from infringement.[22]

The idea that patent damages will tend to be greater in lost profits cases than in reasonable royalty cases makes policy sense so long as the patentees being awarded reasonable royalties are those who are not in fact selling products in the market. But if the recipients of reasonable royalty damages are in fact competitors who failed to meet the rigorous requirements of proof of lost profits, the result may be that those patentees are undercompensated by a traditional reasonable royalty approach.

Courts have responded to the perceived unfairness of this result[23] by expanding reasonable royalty damages in a variety of ways. First, courts have applied control-of-sales

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[22] The economic logic of this is straightforward: a patentee with market power will charge a profit-maximizing price. By contrast, two companies in competition will charge a price lower than the monopoly price, generating less profit to share between them and more consumer surplus. Putting the patentee who faced competition back into the position of receiving a monopoly price requires the infringer to compensate the patentee for the money it has lost to consumer surplus as well as the money it lost to the infringer. Thus, the infringer will regularly have to pay as damages more than it made in profits.

[23] *See, e.g.,* **Robert P. Merges & John F. Duffy, Patent Law and Policy** 980 (4th ed. 2007) (suggesting that artificially high reasonable royalties may be justified as a way of "dispensing with" proof of lost profits while adequately compensating patentees that have lost profits). One might question whether this

concepts from lost profits to reasonable royalty cases. In its most extreme form, this includes the application of the "entire market value rule" to reasonable royalty cases.[24] It is worth beginning by noting that the term "entire market value rule" is a misnomer. As Brian Love has observed, it is effectively *never* the case that the patent is responsible for all of the value of a product.[25] Most commonly, other patents also contribute to the defendant's product. Even if that isn't true, the defendant's know-how, materials, and marketing efforts almost always contribute some value, and usually the most significant part of the value of an infringing product. The entire market

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is unfair, given that these plaintiffs by definition failed to meet the proof requirements for lost profits. I would distinguish between cases like *Grain Processing,* in which the patentee would not have made the sales at all, and cases in which the patentee probably did lose sales and it is just the measure of those sales or the resulting profits that could not be proven. The former restriction makes sense; the latter deprives patent owners of a return that they would have made absent the infringement. *Accord* Schlicher, *supra* note __, at 532 (approving of *Grain Processing*).

It is worth noting that the patentee in *Grain Processing* might have been able to make the infringing sales by cutting the price on all its goods so that its profit margin was less than the 3% cost differential between the patented invention and the non-infringing substitute. *See* Jerry A. Hausman et al., *Patent Damages and Real Options: How Judicial Characterization of Noninfringing Alternatives Reduces Incentives to Innovate*, 22 **Berkeley Tech. L.J.** 825, 847 (2007). Given the small difference there, it seems doubtful that doing so would have been net profitable for the patentee. But patentees should certainly have the opportunity to prove that they would have cut their price across the board to price a less-efficient competitor out of the market, and to recover any lost profits (net of the reduced profits on sales they made anyway).

[24] The Federal Circuit endorsed this expansion in *Rite-Hite v. Kelley Co.*, 56 F.3d 1538 (Fed. Cir. 1995) (en banc) ("courts have applied a formula known as the 'entire market value rule' to determine whether such components should be included in the damage computation, whether for reasonable royalty purposes . . . or for lost profits purposes."), though the reference to reasonable royalties was dictum there, since *Rite-Hite* itself involved lost profits. Ironically, it is not clear that the Federal Circuit had applied the entire market value rule to decide a reasonable royalty case before this statement in *Rite-Hite*. But courts have since relied on that language to import the concept into reasonable royalty cases. *See, e.g.*, Fonar Corp. v. General Electric Co., 107 F.3d 1543 (Fed. Cir. 1997); Tec Air, Inc. v. Denso Mfg. Michigan, Inc., 192 F.3d 1353 (Fed. Cir. 1999); Bose Corp. v. JBL, Inc., 274 F.3d 1354 (Fed. Cir. 2001). On the entire market value rule in lost profits cases, see 7 **Donald S. Chisum, Patent Law** sec. 20.03[1][c][iii].

[25] *See* Brian J. Love, *The Misapplication of the Entire Market Value Rule to Reasonable Royalty Cases*, __ **Stan. L. Rev.** __ (forthcoming 2007). *See also* Eric E. Bensen & Danielle M. White, *Using Apportionment to Rein in the Georgia-Pacific Factors*, http://ssrn.com/abstract=982897 (working paper April 2007) (making the point that a real-world negotiation would result in the parties splitting only profits attributable to the infringement); Christopher A. Harkins, *Fending Off Paper Patents and Patent Trolls: A Novel 'Cold Fusion' Defense Because Changing Times Demand It*, 17 **Alb. L.J. Sci. & Tech.** 407, 448 (2007) (same).

value rule nonetheless makes a certain amount of sense in lost profits cases, because if most of the value of the defendant's product is attributable to the patentee's technology, it is reasonable to conclude that but for the infringement the defendant's customers would have bought the product from the plaintiff instead. In such a case, while the defendant almost certainly contributed some value to the ultimate product, it would not have made the sale of that product at all but for the infringement. Instead, the plaintiff would have made the sale, and so the plaintiff would have captured whatever incidental value was due to non-infringing attributes. So the entire market value rule is really a presumption that if *most* of the market value comes from the patent, a practicing patentee would have been able to capture the entire value by making the sale.

The logic of the entire market value rule breaks down in reasonable royalty cases, however, because we're no longer talking about the defendant taking a sale away from the plaintiff. Instead, the question is how to compensate the non-practicing patentee for the value of the patented technology. But since there is always at least some value to the defendant's product not attributable to the patent, any application of the entire market value rule in a reasonable royalty setting necessarily overcompensates the patent owner by giving it value not in fact attributable to the patent.[26] One way to see this is to recognize that if the patentee has truly contributed the entire market value of the technology, no other contribution to the product should be valued at all. On this theory, if a patentee wins an entire market value rule case, no other patentee should be able to recover any damages at all based on the sale of the same product. But

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[26] *See id.*; Lemley & Shapiro, *Royalty Stacking, supra* note __. The Supreme Court stated the issue a century ago in terms that seem to foreclose application of the entire market value rule in reasonable royalty cases: "In so far as the profits from the infringing sales were attributable to the patented improvements they belonged to the plaintiff, and in so far as they were due to other parts or features they belonged to the defendants." Dowagiac Mfg. Co. v. Minnesota Moline Plow Co., 235 U.S. 641, 646 (); accord Yale Lock Mfg. Co. v. Sargent, 117 U.S. 536, 552-53 (1886).

of course that is not the law.[27] It seems probable that the doctrinal creep of the entire market value rule into reasonable royalty cases came about because of patent plaintiffs who really had unsuccessful lost profits cases.[28]

Even in cases that don't apply the entire market value rule, courts have applied the reasonable royalty statute with insufficient sensitivity to the importance of non-infringing components to the value of the overall product. Indeed, the Federal Circuit has even imported the concept of "convoyed sales" of non-infringing goods to the reasonable royalty context, suggesting that a reasonable royalty must include some compensation to the patentee for the value the defendant obtained from sales of unpatented goods that would likely have been sold alongside the patented ones.[29] This suffers from the same flaw as the application of the entire market value rule – it attributes the value of unpatented technologies to the patent owner in circumstances in which the patent owner would not have made sales of those technologies, and

[27] To be sure, this problem affects application of the entire market value rule in lost profits cases as well. But it is one thing to impose this disadvantage on a defendant in order to adequately compensate a plaintiff who has in fact lost profits; it is quite another to make a defendant pay too much in the aggregate in order to provide an unearned windfall to a reasonable royalty plaintiff.

Doug Lichtman has suggested that the royalty stacking problem will be a self-limiting one, because companies can't afford to pay more than the entire value of their product, and if aggregate royalties get too high they will simply stop making the product. Douglas Lichtman, Patent Holdouts and the Standard-Setting Process, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=902646 (working paper 2007). But even if this were true in a hypothetical world of immediate, perfect information, it is unlikely to be of much help in the real world, where damages awards are calculated years or decades later, and where juries do not learn of the other contributions to the success of the product – or worse, are prohibited by the entire market value rule from taking them into account.

[28] The first explicit reference to the use of the entire market value rule in reasonable royalty cases came in *Rite-Hite*, a lost profits case. *Rite-Hite* relied in turn on *State Industries*, which did not in fact apply the entire market value rule, and which was in any event also a lost profits case. The Federal Circuit did not in fact apply the doctrine in a reasonable royalty case until after dictum in *Rite-Hite* suggested that the doctrine already applied in those cases. For a discussion of the evolution of the reasonable royalty cases in the Supreme Court before the creation of the Federal Circuit, see Bensen & White, *supra* note __, [Part I]. For a history of the apportionment principle in patent cases, see Eric E. Bensen, *Apportionment of Lost Profits in Contemporary Patent Damages Cases*, 10 **Va. J. L. & Tech.** 8 (2005).

[29] *See, e.g.,* TWM Mfg. Co. v. Dura Corp., 789 F.2d 895, 901 (Fed. Cir. 1986); Trans-World Mfg. Corp. v. Al Nyman & Sons, 750 F.2d 1552, 1568 (Fed. Cir. 1984).

therefore in which the infringer would have had to pay to develop or acquire the technology from somewhere else.

While the *Georgia-Pacific* factors[30] include several that require the consideration of the value of those non-infringing components, in fact for a variety of reasons those components are undervalued.[31] Most notably, in *Fromson v. Western Litho Plate & Supply* the Federal Circuit simply rejected the very idea that a patentee's remedy should be apportioned based on the share of the value of the overall product the patentee contributed.[32] The district court there had quite reasonably concluded that the parties would have set a royalty rate based on the proportion of the value of the defendant's product that was "attributable to the invention." The Federal Circuit reversed, requiring that the award take the form of a percentage of the defendant's entire product sales, even if that exceeded the total profit the defendant made on the product.[33] Ignoring the other components that contribute to defendant's sales, as *Fromson* appears to require, is intellectually indefensible.[34] Not surprisingly, this approach has led to reasonable royalty rates that are decidedly unreasonable, and indeed that often exceed the defendant's total profit on a product even when that product was composed primarily of non-infringing components.[35]

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30 *See, e.g.,* State Contracting & Eng. Corp. v. Condotte Am., 346 F.3d 1057 (Fed. Cir. 2003).

31 For a detailed discussion of various reasons for this undercompensation, see, e.g., Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 **Tex. L. Rev.** 1575 (2007).

32 853 F.2d 1568 (Fed. Cir. 1988).

33 *Id.* at __.

34 It is also historically indefensible, as Bensen and White have demonstrated. *See* Bensen & White, *supra* note __, at [20-27].

35 *See* Lemley & Shapiro, *supra* note __ (studying reasonable royalty determinations and finding an average royalty rate of 13.1%).

By contrast, some cases suggest that *Fromson* is wrong and that apportionment is permissible. *See, e.g.,* Riles v. Shell Exploration & Prod., 298 F.3d 1302 (Fed. Cir. 2002).

Finally, and most dramatically, courts have occasionally simply increased the reasonable royalty award because they fear that it undercompensates a plaintiff that should in fact have been compensated with lost profits. *Panduit* is the most notable example.[36] In that case, discussed in Part I, the court affirmed the district court's rejection of plaintiff's lost-profits theory for hyper-technical reasons. Having done so, it proceeded to excoriate the district court for applying the normal reasonable royalty rules, and instead re-imported many of the concepts of lost profits, reasoning that the defendant would not have been able to make the sales at all but for the infringement, and therefore that the plaintiff was entitled to damages that far exceeded the 60% of the defendant's profit that the district court has awarded as a reasonable royalty.[37] While the Federal Circuit has rejected the express use of "kickers" to compensate patentees for attorney's fees,[38] the court has also approved of discretionary increases in the reasonable royalty designed to avoid undercompensation,[39] and there is reason to believe that courts continue to award relatively high reasonable royalties and to distort the concept of a hypothetical negotiation between willing buyers and willing sellers, in part to compensate plaintiffs who in a perfect world would have been able to prove entitlement to lost profits.

These distortions to reasonable royalty case law are problematic. While in theory a reasonable-royalty approach could achieve the goal of properly compensating non-practicing patent owners, Carl Shapiro and I have offered both reasons and evidence that in practice it

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[36] 575 F.2d at 1152.

[37] *Id.* at __.

[38] Mahurkar v. C.R. Bard co., 79 F.3d 1572, 1580 (Fed. Cir. 1996) (no "kicker" is permissible on top of the reasonable royalty to compensate for attorney's fees or litigation expenses; patentee must prove case is exceptional to recover such expenses).

[39] *See, e.g.,* King Instruments Corp. v. Perego, 65 F.3d 941, 951 n.6 (Fed. Cir. 1995) ("discretionary increases"); Stickle v. Heublein, Inc., 716 F.2d 1550, 1563 (Fed. Cir. 1983) (allowing for "an increase in the reasonable royalty determined by the court").

systematically overcompensates patent owners in component industries.[40] Indeed, the situation has gotten so bad that some patentees who *can* prove lost profits elect instead to seek a "reasonable" royalty that is far in excess both of what the parties would have negotiated and of the actual losses the patentee suffered.[41] By importing compensation concepts from lost profits into the reasonable royalty context without importing the strict elements of proof, these courts have turned the reasonable royalty from a floor on patent damages designed to avoid undercompensation into a windfall that overcompensates patentees.

At least some, perhaps most, of that overcompensation can be traced to efforts in cases like *Panduit* to compensate practicing patent owners who should be entitled to lost-profits damages. There is no other possible explanation for giving a patentee a royalty based on convoyed sales, for example. And the problem threatens to get worse, not better: Legislation that nearly passed Congress in 2008 would have solved one of the problems I have identified – the fact that modern courts ignore the contributions of non-patented technologies and refuse to apportion damages – while cementing into the statute an equally serious problem – the misapplication of the entire market value rule in reasonable royalty cases. If non-manufacturing patent owners can capture the entire market value of a technology based on their invention of a single component, that overcompensation will encourage too much patent litigation by non-

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[40] Lemley & Shapiro, *supra* note __, at __.

[41] *See, e.g.*, Monsanto Co. v. McFarling, 488 F.3d 973 (Fed. Cir. 2007) (awarding "reasonable royalty" damages of more than six times Monsanto's lost profits); Monsanto Co. v. Ralph, 382 F.3d 1374, 1384 (Fed. Cir. 2004) (approving a royalty which far exceeded the defendant's profit from infringement); Golight, Inc. v. Wal-Mart Stores, 355 F.3d 1327, 1338 (Fed. Cir. 2004) (the court upheld a reasonable royalty that exceeded the infringer's profits from the product). For a discussion of this issue, see, e.g., Amy Landers, *Let the Games Begin: Incentives to Innovation in the New Economy of Intellectual Property Law*, 46 **Santa Clara L. Rev.** 307 (2006). The reader should be aware that I represent McFarling in *Monsanto Co. v. McFarling.*

practicing entities, exacerbate the already-serious problem of royalty stacking, and discourage the sale of products that incorporate many components.

III. The Two Domains of Patent Damages

The purpose of both patent damages rules is ultimately the same – to compensate the inventor for losses attributable to the infringement – but they are directed at fundamentally different types of losses. Lost profits damages compensate patent owners who would have had partial or complete market exclusivity in the absence of infringement. To make those patent owners whole, defendants must be made to pay in many cases more than they made by infringing, since it is elementary economics that competition results in lower producer surplus than monopoly.[42] By contrast, reasonable royalty damages are designed to mimic the result that patentees not interested in or able to take advantage of market exclusivity would have achieved if they had been able to bargain with the infringers beforehand. To avoid encouraging infringement, the reasonable royalty calculus skews the damages award upward by making the counterfactual assumption that the bargainers would have known that the patent was both valid and infringed.[43] But the ultimate aim is not to mimic exclusivity, or to give patentees the full social value of their technology, but instead to set a rate that would have both compensated patentees and allowed users of the technology to make a reasonable profit, taking into account the other patents they must license and the other costs they must may to sell the product.

Unlike market exclusivity claims, patentees whose injury is in lost licensing revenue have no legitimate claim that they would have made or controlled the sale of unpatented components

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42 *See supra* note __.

43 *Cf.* Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19 **J. Econ. Persp.** 75 (2005) (noting the probabilistic nature of patent rights in practice); Janicke & Ren, *supra* note __, at __ (finding that patentees lose ¾ of patent cases).

of the defendant's product or of "convoyed sales" of related products. Their compensation should be based on the value the patented invention actually contributes as a proportion of the defendant's product, taking into account the other patents, know-how, raw materials, and labor that also contribute to the value of that product and the existence of possible alternatives to the patented technology. Thus, a truly reasonable royalty is one that bases the patentee's damages on the merits of the incremental technical contribution of the patent.[44] The distortions I described in the last part occur because courts want to give patentees in the first category damages adequate to compensate for the loss of market exclusivity, and if lost profits are not available they import those market exclusivity concepts into reasonable royalty case law.

Congress has been considering reforming the damages statute in ways that would mandate application of this logical apportionment principle in reasonable royalty cases. Unfortunately – and surprisingly – that proposed reform has proven controversial, raising objections not just from patent trolls who want to lay claim to a disproportionate share of the defendant's product but also from industry groups (such as pharmaceutical companies) that in fact have nothing to fear from this reform. As a result, the bill actually passed in the House in 2007 blends the salutary apportionment ideas with a rule that would compel application of the

[44] Theoretically, that contribution could be zero if the patent is no better than available non-infringing alternatives. *See* John W. Schlicher, *Measuring Patent Damages by the Market Value of Inventions-The Grain Processing, Rite-Hite, and Aro Rules*, 82 **J. Pat. & Trademark Off. Soc'y** 503, 527-29 (2000). *Cf.* Roger D. Blair & Thomas M. Cotter, *Rethinking Patent Damages*, 10 **Tex. Intell. Prop. L.J.** 1, 74 (2001) (suggesting achieving the same result by creating a "patent injury" doctrine analogous to the "antitrust injury doctrine that requires a showing of causation before entitlement to relief); Julie Turner, Note, *The Nonmanufacturing Patent Owner: Toward a Theory of Efficient Infringement*, 86 **Cal. L. Rev.** 179, 186-93 (1998) (arguing that patent owners who are not injured should not be able to sue, and contending that those who do not practice or license their patents have not been injured). In practice, however, courts almost always award some royalty.

entire market value rule in reasonable royalty cases.[45] That outcome might actually have been worse than no change at all, because it would have given patentees whose only injury is lost licensing revenue an incentive to argue for the value of components they had no hand in inventing or implementing.

Assuming Congress does not act to enshrine the entire market value rule in reasonable royalty cases, the courts have the power to fix the problem with reasonable royalty damages. To do so, courts (or Congress, should it decide to act) should expressly distinguish between damage theories appropriate in lost profits cases and those appropriate in reasonable royalty cases. Patentees whose harm is based on a lost of market exclusivity – those who could reasonably have expected to make additional sales, or sales at a higher price, absent infringement – should be entitled to lost profits damages. Patentees whose harm is lost licensing revenue, but who could not plausibly claim to have lost sales as a result of the infringement, should be entitled to reasonable royalties, but those reasonable royalties should be calculated based on what the market would actually have borne assuming infringement of a valid patent, and should not include kickers or the allocation of the entire market value to a patentee that only contributed part of that value.[46] Enforcing a strict divide between these groups should help to end the distortions of reasonable royalty damages that have contributed to the royalty stacking and patent holdup problems.

To make this strict divide work, courts will need to be more lenient than they have been in requiring proof of lost profits. It makes sense to require evidence that the patentee would in fact have made sales absent the infringement, if for no other reason than to deter undeserving

[45] H.R. 1908, 110th Cong., 1st Sess. (2007).

[46] A return to this approach would be consistent with Supreme Court precedent on the question. *See* Seymour v. McCormick, 57 U.S. (16 How.) 480, 490-91 (1853) (rejecting the idea that a patentee on a component is entitled to royalties equivalent to the inventor of an entire product).

claimants from alleging that, but for the infringement, their failed company would in fact have become a market leader. But courts have too often been willing to allow technical failures of proof – a lack of detail in separating profits from costs, or insufficiently specifying market demand – to doom a claim for lost profits. They have also required proof that the patentee itself could have met the market demand, ignoring the prospect that a patentee could grant a territorially or product-limited exclusive license to another firm to pick up the slack.[47] They have imposed these requirements secure in the knowledge that the patentee would still be compensated by reasonable royalties. But under a strict divide approach, a patentee who can show that it is more likely than not that an infringer's sales cut into its own should be entitled to the court's best estimate of the patentee's lost profits. That estimate may not be perfect, but it is likely to be at least as accurate as the alternative reasonable royalty measure,[48] and will avoid distorting the reasonable royalty cases that are not brought by patentees claiming market exclusivity. Fortunately, this need not reflect a big change in Federal Circuit jurisprudence. There are a number of pre-*Rite Hite* Federal Circuit cases that find lost profits despite the difficulty of calculating profits or the uncertainty of a counterfactual world.[49]

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[47] *Cf.* Stephen M. Meurer & Suzanne Scotchmer, *Profit Neutrality in Licensing: The Boundary Between Antitrust Law and Patent Law,* 2006b **Am. L. & Econ. Rev.** __, http://socrates.berkeley.edu/~scotch/neutrality.pdf (suggesting ways patentees could structure royalties to both participate in the market and license others to fill remaining demand).

[48] Indeed, it is somewhat ironic that courts have insisted on strict compliance with the elements of proof of a lost-profits claim, given that the reasonable royalty alternative involves at least as much uncertainty and approximation. *Cf.* Riles v. Shell Exploration Co., 298 F.3d 1302, 1311 (Fed. Cir. 2002) (reasonable royalty calculus "necessarily involves some approximation of the market as it would have hypothetically developed absent infringement").

[49] *See, e.g.,* Standard Havens Prods. v. Gencor Indus., 953 F.3d 1360 (Fed. Cir. 1991) ("Evidence that shows a reasonable probability that the patent owner would have made the infringing sales made by the infringer will suffice . . . . Thus, the patent owner need not prove causation as an absolute certainty."); Del Mar Avionics, Inc. v. Quinton Instr. Co., 836 F.3d 1320 (Fed. Cir. 1987) (the district court erred because it "gave controlling weight to the difficulty of the calculation, and in so doing adopted a measure of damages that weas not designed to make whole the injured party.").

With manufacturing patent owners (and those that have granted exclusive licenses to manufacturing firms) more clearly protected under the lost profits prong, the reasonable royalty measure of damages can return to its original role – as a means of ensuring that patentees aren't denied fair compensation for the value they could have demanded in a fair market for a nonexclusive license to their patent. It will also render largely irrelevant the question of whether reasonable royalties can exceed proven lost profits, and therefore end the growing practice of patentees opting for a distorted measure of royalties that is greater than the profits they actually lost.

IV. Conclusion

Patent damages are supposed to compensate patent owners for their losses, putting them back in the world they would have inhabited but for infringement. The lost profits analysis contains sophisticated economic tools to help courts calculate that but-for world. Unfortunately, the perfect has too often been the enemy of the good, relegating a number of lost profits cases to the rather less economically-sophisticated analysis of reasonable royalties. Worse, the importation of concepts from lost profits into reasonable royalty analysis, and the fear of undercompensating deserving patent owners that should have been able to prove reasonable royalties, has led to systematic distortions in the reasonable royalty structure that overcompensate non-manufacturing patent owners. Enforcing a strict separation between the two, and easing the burden of proof on lost profits, will enable both types of patent damages to serve the compensatory purpose for which they were intended.