9

The Geopolitical Implications of Patent Holdout and the Ensuing Race to the Home Court

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I. INTRODUCTION

During the last few decades, patent holders and implementers participating in standards developing organizations (SDOs) have successfully cooperated to develop new wireless standards that have benefited consumers all around the world. Thanks to such collaborative efforts, consumers around the world can communicate with each other, play games, watch movies, and enjoy various other activities using wireless networks.[1]

The standardization process has been successful because it has made *all* its participants – innovators, implementers, governments, and consumers – better off. The future of collaborative standards hinges on ensuring that this remains to be the case. That requires two *necessary conditions*: Implementers must have access to the best technological solutions under terms and conditions that allow them to profitably commercialize the products embedding those standards, and innovators must receive fair compensation for their research efforts.[2]

Much of the policy debate during the last 10 years has focused on how to reduce patent holders' leverage in negotiations with implementers that aim to license their technologies to avoid the risk of patent holdup and, therefore, ensure that the *first necessary condition* holds (that manufacturers can profitably commercialize products embedding standardized technology). Several authors have repeatedly warned about the risk of patent holdup in the licensing of standard-essential patents (SEPs).[3]

[1] Jorge Padilla, John Davies, & Aleksandra Boutin, *Economic Impact of Technology Standards: The Past and the Road Ahead* (Sept. 24, 2017), www.compasslexecon.com/wp-content/uploads/2018/04/CL_Economic_Impact_of_Technology_Standards_Report_FINAL.pdf.

[2] Justus Baron et al., *Contribution to the Debate on SEPs (E03600)*, Eur. Comm'n – Internal Mkt., Indus., Entrepreneurship & SMEs – Indus. Pol'y: Standard Essential Pats. (2021), https://ssrn.com/abstract=3778166.

[3] Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 Tex. L. Rev. 1991, 2049 (2007).

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Holdup is a classic problem in economics; it arises in circumstances when firms negotiate trading terms after they have made costly, relationship-specific investments.[4] Since the costs of these investments are sunk when trading terms are negotiated, they are not factored into the agreed terms. As a result, depending on the relative bargaining power of the firms, the investments made by the weaker party may be undercompensated. In the context of SEPs, patent holdup would arise if SEP owners were able to take advantage of the essentiality of their patents to charge excessive royalties to manufacturers of products reading on those patents that made irreversible investments in the standard.

After years of heated debate, however, there is *no* consensus about whether holdup exists. Some argue that there is no evidence of holdup in practice.[5] If patent holdup were a significant problem, manufacturers would anticipate that their investments would be expropriated and would thus decide not to invest in the first place. But end product manufacturers have invested considerable amounts in standardized technologies. Others claim that while investment is indeed observed, actual investment levels are "necessarily" below those that would be observed in the absence of holdup. They allege that, since that counterfactual scenario is not observable, it is not surprising that more than 15 years after the patent holdup hypothesis was first proposed, empirical evidence of its existence is still lacking.[6]

The *second necessary condition* for the proper functioning of the standardization process, namely that patent holders be properly compensated, has received much less attention from scholars and policymakers. As Epstein and Noroozi explain:

> By "patent holdout" we mean [. . .] that an implementer refuses to negotiate in good faith with an innovator for a license to valid patent(s) that the implementer infringes, and instead forces the innovator to either undertake significant litigation costs and time delays to extract a licensing payment through court order, or else to simply drop the matter because the licensing game is no longer worth the candle.[7]

Arguably, the possibility of patent holdout is especially relevant in the standardization context. As SEP owners that made a commitment to license on fair, reasonable, and nondiscriminatory (FRAND) terms are typically limited in their ability to request an injunction in case of patent infringement, they have little or no

[4] Oliver Williamson, Markets and Hierarchies: Analysis and Antitrust Implications (1975).

[5] Alexander Galetovic & Stephen Haber, *The Fallacies of Patent Holdup Theory*, 13 J. Competition L. & Econ. 1, 44 (2017).

[6] Rebecca Kelly Slaughter, Comm'r, Fed. Trade Comm'n, SEPs, Antitrust, and the FTC, Remarks Prepared for Delivery at the ANSI World Standards Week: Intellectual Property Rights Policy Advisory Group Meeting (Oct. 29, 2021). *See also* Carl Shapiro & Mark A. Lemley, *The Role of Antitrust in Preventing Patent Holdup*, 168 U. Pa. L. Rev. 2019, 2060 (2020).

[7] Richard A. Epstein & Kayvan B. Noroozi, *Why Incentives for "Patent Holdout" Threaten to Dismantle FRAND, and Why It Matters*, 32 Berkeley Tech. L.J. 1381, 1384 (2017).

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leverage when negotiating a licensing deal. The very same restrictions that limit the bargaining power of licensors to deal with the alleged risk of holdup aggravate the risk of patent holdout and the likelihood of undercompensating innovation. Furthermore, the risk of holdout is more significant for SEP owners with many complementary patents reading across jurisdictions. Patentees with large and global patent portfolios naturally seek to license their portfolio of SEPs at once to minimize transaction costs. Yet, some implementers refuse to negotiate in this way and choose to challenge the validity and/or essentiality of the SEP portfolio "patent-by-patent" and/or "jurisdiction-by-jurisdiction."[8] This strategy involves excessive litigation costs and is, therefore, inefficient. It may also lead to excessively low royalties and undercompensation.[9]

While patent holdout concerns have attracted the attention of the leadership of the US Department of Justice (DOJ) and the United States Patent and Trademark Office (USPTO) in the recent past,[10] some authors have rejected them as relatively immaterial.[11] However, the risk of holdout is not a mere theoretical *curiosum*. Heiden and Petit empirically document that some implementers do engage in patent holdout by ignoring correspondence, postponing negotiations, or simply by making counteroffers that are inconsistent with industry practice.[12] Other strategies include trying to affect the policies of SSOs or appealing to competition authorities. Of course, by delaying and stalling negotiations, potential licensees aim to obtain better licensing terms.

[8] Baron et al., *supra* note 2.

[9] In the Unwired Planet v. Huawei case [2017] EWHC 2988 (Pat), Judge Birss asked "[W]hat sort of license for Unwired Planet's portfolio would be FRAND in terms of its geographical scope when applied to a multinational licensee like Huawei? I will start by asking what a willing licensor and a willing licensee with more or less global sales would do. There is only one answer. Unwired Planet's portfolio today is (and in 2014 it was) sufficiently large and has sufficiently wide geographical scope that a licensor and licensee acting reasonably and on a willing basis would agree on a worldwide license. They would regard country by country licensing as madness. A worldwide license would be far more efficient."

[10] Makan Delrahim, Assistant Att'y Gen., "Telegraph Road": Incentivizing Innovation at the Intersection of Patent and Antitrust Law, Remarks at the 19th Annual Berkeley-Stanford Advanced Patent Law Institute (Dec. 7, 2018), www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-remarks-19th-annual-berkeley-stanford.

[11] Letter from 77 former government enforcement officials and professors of law, economics, and business to Makan Delrahim, Att'y Gen. (May 17, 2018), www.competitionpolicyinternational.com/wp-content/uploads/2018/05/DOJ-patent-holdup-letter.pdf.

[12] Bowman Heiden & Nicolas Petit, *Patent "Trespass" and the Royalty Gap: Exploring the Nature and Impact of Patent Holdout*, 34 Santa Clara High Tech. L.J. 179 (2018); Brian J. Love & Christian Helmers, *An Empirical Test of Patent Hold-Out Theory: Evidence from Litigation of Standard Essential Patents*, Santa Clara Univ. Legal Stud. Rsch. Paper (2021), https://ssrn.com/abstract=3950060. The authors find some evidence of an association between in-litigation holdout and both SEP portfolio size and patent quality; however, they find no evidence associating pre- or in-litigation holdout with the international breadth of SEP rights.

Indeed, the extant debate about patent holdout is not about whether implementers engage in so-called efficient[13] infringement; they do.[14] Heiden and Petit argue that the delay and the costs associated to patent holdout may also be related to the significant decrease in licensing coverage in the mobile phone industry, which has dropped from 73% to 36% between 2006 and 2016. Rather, what some scholars, such as Shapiro and Lemley,[15] claim is that the patent holdout concern is a theoretical and groundless "chimera," which at most affects only the distribution of surplus from innovation, stating that, in any case, it could be addressed through ex post court-mandated damages. FTC Commissioner Rebecca Slaughter maintains a similar position:

> Holdout, as long as it is unilateral and not done collusively among licensees, fits squarely into the box of problems that have patent law solutions. If a potential licensee has engaged in willful infringement, the patent holder has remedies in patent law, including the potential for enhanced damages. Unilateral holdout does not involve the abuse of market power to stymie consumer choice that holdup does, and therefore does not trigger antitrust concerns in the same way.[16]

In plain English, their claims are that when a licensee takes actions to stop paying licensors for the patents, it matters to the *licensors*, but (a) it should not concern consumers, because the latter's slice of the pie is unchanged, (b) it should not bother the licensees' competitors that pay religiously for the use of the innovator's technologies, and, in any event, (c) the licensor can always be compensated in court.

However phrased, these claims are wrong. In a recent paper, Llobet and Padilla show that patent holdout can engender significant social-welfare losses under a wide range of realistic circumstances.[17] The implications of patent holdout are not merely distributional. They find that implementers may have the incentive to incur significant costs to litigate SEPs sequentially (that is, patent-by-patent and/or jurisdiction-by-jurisdiction) even when this is socially inefficient. Such a strategy leads to lower royalty payments and may result in undercompensation of innovation. Furthermore,

[13] Efficient in a private, self-interested sense, but not in the collective interest, of course.

[14] The former head of patent licensing at Apple, Boris Teksler, explained that in his opinion "'efficient infringement,' where the benefits outweigh the legal costs of defending against a suit, could almost be viewed as a 'fiduciary responsibility,' at least for cash-rich firms that can afford to litigate without end." *The Trouble with Patent-Troll Hunting*, Economist (Dec. 14, 2019), www.economist.com/business/2019/12/14/the-trouble-with-patent-troll-hunting.

[15] According to the authors, "[p]atent advocates have sought to deflect concerns about patent holdup not only by denying its existence but by concocting a supposedly parallel story of 'patent holdout.'" They claim that "[p]atent holdout is incoherent as a theoretical matter and rejected as an empirical matter" and conclude that "[t]hose who express concerns about patent holdout seem to want to increase the returns to patent holders whose inventions add little or no incremental value, possibly because they advise SEP owners." Shapiro & Lemley, *supra* note 6, at 2047 n.91.

[16] Slaughter, *supra* note 6.

[17] Gerard Llobet & Jorge Padilla, *A Theory of Socially Inefficient Patent Holdout* (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4021461.

it is likely to cause the dissipation of social surplus, as it leads to excessive litigation and leads to the exclusion of other implementers that, due to their smaller size or because of their start-up nature, cannot afford to engage in a similar litigation strategy.

In addition, there are powerful reasons to conclude that ex post court-mandated damages are likely to be insufficient to deter such a socially costly holdout strategy. First, it is obvious that if the cost of a patent holdout strategy is payment of reasonable royalties ex post, then (rational) implementers will have no incentive to pay early, given that a dollar today is worth more than a dollar in the future.[18] Second, when all that the SEP holder can recover in adjudication is cash royalties, not the other terms and conditions (for example, a cross license) that it would have been able to obtain during good faith bilateral negotiations, then an injunction is strictly needed to make the SEP holder whole. Likewise, when a delay in payment causes the SEP holder's bankruptcy or undermines its ability to fund valuable R&D, either by exhausting its internal funds or weakening its credit relative to third-party investors, then an injunction may also be strictly needed.[19] This is especially likely because holdout tends to occur in cascades: Once a major licensee engages in holdout, all others, insofar as they compete with the former, have an incentive to shirk on their payments too. As we subsequently explain, not even *enhanced* damages may be able to address the problems identified.

In Llobet and Padilla's paper, inefficient patent holdout can be prevented in a global court or when a local court is empowered to determine the validity of patents across all jurisdictions. However, this finding rests on some strong (and unrealistic) assumptions. Most importantly, local courts typically lack the authority to adjudicate with respect to the validity and infringement of foreign patents.[20] In addition, Llobet and Padilla assume that local courts approach patent disputes based on a similar legal framework – statutes and case law – and possess the same level of technical competency, and their decisions are unbiased (that is, based exclusively on objective information about the patent portfolio and, possibly, the outcome of previous trials). Finally, they implicitly assume that if a court with global jurisdiction were created de novo, it would also apply a similar legal framework and be unbiased.

[18] This could be addressed through enhanced damages. Jonathan M. Barnett & David J. Kappos, *Restoring Deterrence: The Case for Enhanced Damages in a No-Injunction Patent System*, in this book.

[19] David Goldman, *Qualcomm Made a Deal with Apple. Its Stock Has Soared 40%*, CNN Bus. (Apr. 17, 2019), https://edition.cnn.com/2019/04/17/tech/qualcomm-stock/index.html ("With the company no longer at risk of losing one of its most important sources of revenue, Qualcomm's stock has soared 40% to a 5-year high since it announced Tuesday it had settled all litigation with Apple. Qualcomm will continue charging Apple royalties for its patents, and Apple will pay Qualcomm a substantial fee as part of the agreement.").

[20] Jorge L. Contreras, *Global Rate-Setting: A Solution for Standards Essential Patents?*, 94 Wash. L. Rev. 701, 757 (2019).

As of today, we are not aware of any realistic initiative to create a multilateral institution with authority to resolve SEP disputes globally. Instead, we observe courts in various jurisdictions (for example, the United Kingdom and China) attributing to themselves the right to decide global license terms.[21] We also see how licensors and licensees file anti-suit, anti-anti-suit injunctions, and anti-anti-anti-suit injunctions seeking to influence which court ends up setting global terms. These maneuvers only make sense if courts are heterogenous, whether their differences are driven by differences in legal statutes, case law, speed, or objectivity.

In this chapter, we explore the implications of these developments for the future of the standardization process. Specifically, we consider the implications of extraterritoriality when licensors and licensees are located in different jurisdictions and local courts may be biased in favor of local litigants.

The pursuit of domestic industrial policy objectives through the biased enforcement of the law is likely to backfire and generate negative effects for everyone. Yet countries and their companies may face a prisoners' dilemma in which all litigants strive to get their disputes resolved by their local courts. This prisoners' dilemma may undermine the creation of global standards that, in the past, have contributed to the development and diffusion of technologies, such as mobile telephony, so successfully. It may cause the fragmentation of global standards along geopolitical lines: US firms would contribute with technologies covered by US patents to standards with a US-only geographic scope; EU firms would contribute with technologies covered by EU patents to standards with an EU-only geographic scope; and Chinese firms would contribute with technologies covered by Chinese patents to standards with a Chinese-only geographic scope; and so forth. This fragmented landscape will result in delayed innovation and result in worse and more expensive end products around the world due to lost economies of scale and scope.

The remainder of this chapter is organized as follows. In Section II, we detail the conditions under which patent holdout is socially inefficient. In Section III, we explain why ex post damages, even if somewhat enhanced, are likely to be insufficient to deter willful infringement. In Section IV, we explain how a global dispute resolution mechanism – a global court or mandatory arbitration tribunal – could eliminate the incentives to engage in socially inefficient patent holdout litigation

[21] Richard Lloyd, *UK Supreme Court Hands Unwired Planet and Conversant Victory in Key SEP FRAND Dispute*, IAM (Aug. 26, 2020), www.iam-media.com/frandseps/breaking-uk-supreme-court-hands-unwired-planet-and-conversant-victory-in-key-sep-frand-dispute; Bing Zhao & Jacob Schindler, *Inside Samsung's Wuhan Anti-suit Injunction against Ericsson*, IAM (Jan. 6, 2021), www.iam-media.com/frandseps/more-details-emerge-wuhan-anti-suit-ruling; Bing Zhao, *Chinese Judges Can Set Global SEP Rates and License Terms, Supreme People's Court Confirms*, IAM (Sept. 2, 2021), www.iam-media.com/frandseps/chinese-courts-can-set-global-sep-rate-and-licensing-terms-spc-confirms; and Jacob Schindler, *Sharp-Oppo Patent Dispute Ends with Cross-License Deal*, IAM (Oct. 8, 2021), www.iam-media.com/frandseps/sharp-oppo-patent-dispute-ends-cross-licence-deal.

strategies and discuss the institutional framework that would make that possible. In Section V, we document that, in the absence of a global dispute resolution mechanism, local courts around the world are moving to set global license terms and explain the risks and challenges posed by these developments. Most importantly, we expose the risk of fragmentation of otherwise global standards. Section VI concludes with a discussion of alternative ways of dealing with such risks.

II. SOCIALLY INEFFICIENT PATENT HOLDOUT

As noted in the Introduction, the real debate about patent holdout concerns two issues: (a) whether it only affects the distribution of surplus from innovation, and (b) whether it can be addressed through ex post court-mandated damages. In this section, we explain that patent holdout's implications are not merely distributional; rather, patent holdout is socially inefficient under realistic conditions. Then, in the next section, we show that patent holdout's adverse consequences are unlikely to be effectively addressed in the absence of injunctions – for example, through the award of ex post damages.

A. *Conditions for Inefficient Patent Holdout*

Llobet and Padilla model the negotiation between a licensor owning a SEP portfolio with patents in two jurisdictions and a global implementer that needs access to the patented technology to develop its products.[22] Due to its commitment to license on FRAND terms, the innovator is constrained to set the same royalty in both jurisdictions (to the extent that those jurisdictions are similarly situated) and to honor the offer made prior to litigation even after it is successful on validity in court.

The theoretical model rests on the following realistic assumptions. First, the SEP owner possesses many complementary patents and therefore seeks to license its whole portfolio at once to minimize transaction costs. Second, because standardized products are sold globally and the SEP portfolio at issue includes patents from different jurisdictions, the global implementer can challenge the validity of patents in that portfolio in different national courts (that is, "jurisdiction by jurisdiction").[23] Third, the implementer has the option to challenge the validity of these patents simultaneously (for example, globally) or sequentially (for example, patent by patent or jurisdiction by jurisdiction). Fourth, in sequential lawsuits, the result of a trial affects the probability that each party wins the following one. That is, if the implementer wins the first trial, it has a higher probability to win the second, as a first victory may uncover information about the validity of other patents that relate to

[22] Llobet & Padilla, *supra* note 17.

[23] Which in the context of the Llobet & Padilla paper is equivalent to "patent by patent" litigation since the licensor in their model owns a patent per jurisdiction.

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the same type of innovation, which will be less likely to be upheld in court. Fifth, the impact of a validity challenge on royalty payments is asymmetric: Payments are reduced to zero if the patent is found to be invalid but are not increased if it is found valid (and infringed). This last assumption is consistent with the commitment to license on FRAND terms, whereby the innovator is constrained to set the same royalty across jurisdictions and to honor the offer made even after it is successful in court.

Llobet and Padilla show that the features of the legal system described in the last three assumptions can be strategically used by the manufacturer to reduce the compensation received by SEP owners even when that strategy entails a significant social cost. This result does not rely on the differential legal costs that global and local litigation might entail but, rather, on informational spillovers across jurisdictions.

The intuition is as follows. Suppose, for the sake of argument, that the innovator sets a royalty for each patent for which, in the simultaneous trial case, the implementer would be indifferent between settlement and litigation.[24] Under sequential litigation, however, the implementer may be willing to challenge a patent because of the gain in a future trial. This is due to the asymmetric effects that winning or losing the second trial has on the royalty rate that the implementer will have to pay. If the implementer wins the first trial, so that the first patent is invalidated, its probability of winning the second one increases, which means that the innovator is likely to settle for a lower royalty for the second patent or see both patents invalidated in court. In the opposite case, if the innovator wins the first trial, so that the second is also likely to be unfavorable to the implementer, the latter always has the option to pay the original royalty rate and avoid the second trial. In other words, the possibility that the implementer might be able to negotiate the royalty rate downward after a victory in the first trial, without the risk of it being increased in case of a defeat, fosters sequential litigation and results in lower royalties than the simultaneous litigation of all patents would produce.

When the innovation has a moderate value, the implementer's sequential litigation strategy forces the patent holder to lower its royalty to avoid being dragged from court to court. In contrast, a patent holder with a high-value innovation might decide to increase its royalty even if that generates inefficient litigation. When the patent is highly valuable and the informational spillovers between jurisdictions are sufficiently strong, raising the royalty, rather than decreasing it, might be profitable for the patent holder. Its success in court in the second jurisdiction is very likely upon success in the first one, and this implies that the downstream producer would settle even if the royalty were high. In that case, the patent holder trades off the losses

[24] That rate will necessarily be below the incremental value of the licensor's technology, which is the level of the royalty at which the licensee would be indifferent between using the patented technology or not, since exiting the market is less desirable than engaging in costly litigation.

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from the initial litigation with the higher royalty payment in the second jurisdiction after an initial success.

When the value of the innovation is moderate, the implementer clearly prefers to litigate sequentially since that leads to a lower royalty. Yet, it also prefers to do so when the innovation is highly valuable even if that means that legal costs are incurred, and the royalty is higher. In this case, since the patent holder chooses a high royalty rate, litigation will take place in the first jurisdiction whether litigation is sequential or not. But, sequential litigation, by making the success probabilities in the second jurisdiction more extreme, always discourages one of the parties from going to court again, which, since litigation is costly, makes both parties better off.

B. *Patent Holdout and SEPs*

The risk of socially inefficient holdout, while being applicable to any portfolio that includes patents the validity of which is related, becomes more significant in the context of SEPs for the following reasons. The first is the difficulty of SEP holders in adjusting their royalties upward after the first successful trial, as it might be considered a breach of their FRAND commitments. Indeed, we find that while a sequential litigation strategy may prove socially inefficient when the patent holder can revise the royalty upward, the distortion is more likely and more severe when the royalty initially chosen by the patent holder cannot be revised upward after a success in court.

The second is that, following recent intellectual property (IP) and competition law litigation in the United States,[25] the European Union,[26] and other jurisdictions, SEP owners are restricted in their ability to seek injunctions even in case of willful infringement.[27] By increasing the cost of holdout, injunctions curtail the incentives for the downstream producer to engage in sequential litigation and can help restore efficiency. However, while the threat of injunction mitigates the incentive to litigate sequentially and, therefore, excessively (that is, even when such litigation reduces social welfare), Llobet and Padilla demonstrate that it is unlikely to eliminate it.

The third reason is that patent holdout may undermine the standardization process. A recent Draft Statement published by the DOJ, USPTO, and the National Institute of Standards and Technology (NIST), states that:

> At the same time, when standards implementers are unwilling to accept a F/RAND license or delay licensing negotiations in bad faith, these strategies can lessen patent holders' incentives to participate in the development process or contribute technologies to standards voluntarily. Without adequate incentives to contribute to a

[25] eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006).
[26] Case C-170/13, Huawei Techs. Co. Ltd. v. ZTE Corp., ECLI:EU:C:2015:477 (July 16, 2015), https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A62013CJ0170.
[27] Barnett & Kappos, *supra* note 18.

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> consensus-based process, patent holders may opt for closed, proprietary standards that do not offer the same benefits of interoperability and enhanced consumer choice.[28]

We agree that if potential licensees are allowed to delay licensing negotiations in bad faith, this may lessen patent holders' incentives to participate in SDOs or contribute technologies to standards voluntarily.[29] But that is not the only, or even the most important, cost of such nefarious strategies. As explained earlier, patent holdout often leads to socially excessive litigation and causes innovators to be undercompensated, thus hurting innovation. Patent holdout strategies may also distort competition in markets where implementers engaging in such strategies compete if there are asymmetries in the ability to engage in costly litigation (see Section II.C). Furthermore, and most importantly, such strategies risk undermining the integrity and efficiency of the patent system. As a result, far fewer innovations will be developed in the first place, irrespective of whether they end up being standardized or not.

As explained by Haber and Lamoreaux,[30] patents are valuable because the right to exclude that they confer protects innovators against the free riding of their ideas, and because that right takes the form of a temporary property right that can be sold, licensed, and traded. This is of fundamental importance, since many innovators are just not good at running businesses and often prefer to transfer the task of commercialization to others. As these authors state,

> [t]he temporary property right that comes with a patent grant provides the requisite assurance [that their ideas will not be stolen by the licensees], facilitating a division of labor in which innovators can specialize in what they do best.[31]

Policy interventions that weaken the bargaining position of patent holders vis-à-vis unwilling licensees will discourage innovation by specialized firms, which depend for their existence on the proper functioning of markets for technology where they can license their technologies.[32] Such misguided interventions may force implementers to divert their own R&D resources to address the gap, which may

[28] Press Release, U.S. Dep't of Just., U.S. Pat. & Trademark Off. & Nat'l Inst. of Standards and Tech., Draft Policy Statement on Licensing Negotiations and Remedies for Standards-Essential Patents Subject to Voluntary F/Rand Commitments (Dec. 6, 2021), www.justice.gov/opa/pr/public-comments-welcome-draft-policy-statement-licensing-negotiations-and-remedies-standards.

[29] Anne Layne-Farrar, Gerard Llobet, & Jorge Padilla, *Payments and Participation: The Incentives to Join Cooperative Standard Setting Efforts*, 23 J. Econ. & Mgmt. Strategy 24 (2014).

[30] Stephen H. Haber & Naomi R. Lamoreaux, *The Battle over Patents: History and Politics of Innovation* (Nat'l Bureau of Econ. Rsch., Working Paper No. 28774, 2021), www.nber.org/papers/w28774.

[31] *Id.* at 8.

[32] "In sum, a market for technology refers to transactions for the use or creation of technology. It includes transactions ranging from full technology packages (patents and other intellectual property, along with know-how and services) to bare-bones patent licensing." Ashish Arora &

limit their ability in terms of simultaneously developing new products or services. Moreover, they may allow large, vertically integrated firms, mostly relying on secrecy, which is socially inefficient in a dynamic sense,[33] to protect their discoveries and capture all returns from innovation. Policy measures that place markets for technology at risk cannot constitute appropriate public policy.

Geradin *et al*. explain that:

> the effects of patents in the hands of upstream specialists are far more complex than is recognized in much of the policy debate, by the lower courts, by some competition officials, or in segments of the academic literature. In fact, patents held by NPEs can offer a number of pro-competitive benefits. First, IPRs, and especially patents, assist the entry of specialists into a market, which has direct implications for the level of competition and therefore the prices that consumer pay. Second, as is well recognized, specialization can mean higher quality. This is no less a factor in IP contexts. Third, when it is upstream, specializing can also translate into more innovation, as rival firms are pushed to innovate in order to remain competitive in the market. These many positive effects must be weighed against the negatives presented by blocking patents and opportunistic ex post licensing.[34]

Standardization enables smaller and non-vertically integrated innovators to collaborate to create valuable technologies that rival the proprietary solutions in the control of a handful of vertically integrated companies. Such pure or horizontal innovators deserve an appropriate return on their investments, which may not occur unless implementers are required, or at least incentivized, to negotiate in good faith.

C. *Patent Holdout and Antitrust*

Llobet and Padilla find a second motivation for the holdout strategy: business stealing. Global implementers may engage in inefficient patent holdout – that is, litigate excessively – to gain a valuable cost advantage over their competitors, especially those who may not be able to afford such a costly strategy because they are relatively small, are financially constrained (as many startups are), or have a local dimension. Global implementers may prefer to litigate, even when litigation costs are so large that it would be preferable for society to avoid litigation, because their royalty burden may be reduced both in absolute terms and, in particular, relative to the royalty burden for its rivals if successful in litigation (while it would not go up if the patents are found valid). This business stealing incentive will result in

Alfonso Gambardella, *The Market for Technology*, *in* Handbook of the Econ. of Innovation 646 (Bronwyn H. Hall & Nathan Rosenberg eds., 2010).

[33] Klaus Kultti, Tuomas Takalo, & Juuso Toikka, *Simultaneous Model of Innovation, Secrecy, and Patent Policy*, 96 Am. Econ. Rev. 82 (2006).

[34] Damien Geradin, Anne Layne-Farrar, & Jorge Padilla, *Elves or Trolls? The Role of Nonpracticing Patent Owners in the Innovation Economy*, 21 Indus. & Corp. Change 73, 90 (2012).

undercompensation of innovators, but, importantly, it may also result in the anticompetitive foreclosure of more efficient downstream competitors.

Llobet and Padilla consider a scenario in which a large implementer with the ability to fund protracted litigation competes in a downstream market with a competitive fringe, comprising small firms for which litigation is not an option. In this scenario, the large manufacturer may choose to litigate to force the innovator to settle on a low royalty. The large manufacturer exploits the asymmetry with its defenseless small rivals to reduce its (relative) IP costs. In some jurisdictions, it may also exploit yet another asymmetry in the legal system to achieve an even larger cost advantage. If both the large manufacturer and the innovator choose to litigate and the former wins, the patent is invalidated, and the large manufacturer avoids paying royalties altogether. Whether this confers a comparative advantage on the large manufacturer depends on whether the invalidation results in the immediate termination of all other existing licenses or not. If not, then an additional competitive advantage is obtained.

III. ON THE INADEQUACY OF EX POST COMPENSATORY DAMAGES

It is often argued that monetary damages will usually be adequate to fully compensate a SEP holder in cases of strategic patent holdout. For example, Shapiro and Lemley state that:

> [w]hile courts may have difficulty calculating those damages, they tend to err on the side of paying patent owners too much, not too little. Plus, a defendant deliberately infringing a patent must also pay punitive damages for willful infringement, and often attorneys' fees as well. Some companies may try to "hold out" by infringing a patent and refusing to pay reasonable royalties, but the law can and does call them to account for it. Patent holdout might be a worry if we did not have a patent system, but that system by design prevents patent holdout.[35]

This proposition is incorrect. Absent injunctions, remedies available at law are inadequate to compensate for willful infringement. That is, reasonable royalties may be insufficient to deter patent holdout. Even enhanced damages may prove insufficient.

As explained by Vincenzo Denicolò and coauthors,[36] licensing negotiations are multidimensional, typically encompassing all IP issues between two companies.[37] Cross-licensing can be a part of the negotiations even for non-practicing entities (NPEs), for example, when follow-on research relies in part on complementary

[35] Shapiro & Lemley, *supra* note 6. (Footnotes omitted.)

[36] Vincenzo Denicolò et al., *Revisiting Injunctive Relief: Interpreting eBay in High-Tech Industries with Non-practicing Patent Holders*, 4 J. Competition L. & Econ. 571 (2008).

[37] Ashish Arora, *Contracting for Tacit Knowledge: The Provision of Technical Services in Technology Licensing Contracts*, 50 J. Dev. Econ. 233 (1996).

patents held by others. Courts, however, do not have the authority to order an infringer to grant a cross-license of the infringer's patents to the successful patent holder plaintiff, nor to impose any other terms. Thus, all that the patent holder can recover in adjudication is cash royalties, not the other terms and conditions it would have been able to obtain during good faith bilateral negotiations. If shifting bargaining power reduces parties' ability to reach agreement on these terms, patent holders cannot be made whole through reasonable royalty awards alone.

Furthermore, because patents have expiration dates, timing issues must be considered when assessing the adequacy of monetary damages.[38] Patent holders face substantial delays in receiving payment, delays that might jeopardize their operations. If court proceedings moved at a quick pace, ignoring delays might be reasonable, but, in reality, patent infringement cases can take years to wend their way through the courts. Any delay in payment benefits the infringer and harms the patent holder, since a dollar today is always worth more than a dollar tomorrow. This is especially true for R&D-focused NPEs,[39] which rely on licensing for their revenues. Thus, infringers tend to have strong incentives to drag out proceedings, while patent holders generally have incentives to settle.

Even when courts finally enforce payment, patent holders face considerable dangers. If a court sets royalties too low, it will not only cost the patent holder in that one transaction but also will hinder its future negotiations with other potential licensees, as no other party will pay more than the judicially determined royalty rate. The opposite is not true, since it is not necessarily in the patent holder's benefit to enforce a ruling involving very high royalties (given the adverse volume effects).[40] This dynamic may reinforce patent holders' incentives to settle on a license, even when it appears that they will win a court case, just to avoid judicially determined rates, and conversely strengthens the incentives of infringers to engage in delaying tactics.

Finally, while SEPs are usually licensed on a portfolio basis, they are generally litigated on a patent-by-patent and jurisdiction-by-jurisdiction basis, even when that is socially inefficient. Damages awarded on this basis are therefore inadequate (by an order of magnitude) when compared with the trespass on intellectual property and the losses incurred.

For all these reasons, not even enhanced damages may be able to address the problems we have identified, though, of course, that depends on the magnitude and nature of the penalty imposed.

[38] The literature has incorrectly assumed away timing issues. For instance, Lemley and Shapiro argues that "[i]t is true that stays will allow the infringing party to keep infringing for some period after the patent is found valid and infringed, but we do not see this as terribly unfair to the patent holder, since the infringing party will owe reasonable royalties for those infringing sales, so any adverse impact on the patent holder is no greater than the impact caused by the infringement during the pendency of litigation." Lemley & Shapiro, *supra* note 3, at 2041.

[39] As opposed to patent assertion entities that conduct no R&D of their own.

[40] Denicolò et al., *supra* note 36.

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IV. GLOBAL DISPUTE RESOLUTION IN A NO-INJUNCTION WORLD

So far, we have established that patent holdout is a real-world problem with significant efficiency effects and potential antitrust implications. We have also shown that the incentives to engage in patent holdout are unlikely to be addressed effectively by means of ex post damages awards, even if the damages awarded exceed compensatory royalties. We have also discussed that injunctions, if available, would mitigate the problem, but are also unlikely to eliminate all incentives to infringe in cases involving SEPs. So, is there any more effective solution?

A. *Mandating Global Litigation*

In Llobet and Padilla, implementers litigate jurisdiction by jurisdiction (and/or patent by patent), even when that strategy entails socially wasteful litigation, to force licensors to set lower royalties or, more generally, to reduce their expected royalty burden. In this model, the way to defeat such a strategy is to compel patent holders and licensees to accept a global jurisdiction where the validity of all patents, irrespective of their geographic scope, is determined by one of the local courts. That is, inefficient patent holdout can be prevented when patent validity across jurisdictions is decided either by a global court or a local court making extraterritorial determinations. Llobet and Padilla find that global litigation is more efficient than a system where each patent is independently tried in each jurisdiction even if the legal costs of global litigation are higher than the costs of litigating in multiple jurisdictions (that is, even in the absence of economies of scale in the legal process).

This conclusion holds because Llobet and Padilla assume that local courts have the authority to adjudicate with respect to the validity and infringement of foreign patents, approach patent disputes based on a similar legal framework – statutes and case law – and possess the same level of technical competency, and their decisions are unbiased (that is, based exclusively on objective information about the patent portfolio and possibly the outcome of previous trials rather than the identities of defendant and plaintiff). They also assume that if a court with global jurisdiction were created de novo, it would adopt a similar legal framework and be unbiased. These are all very strong assumptions. In particular, local courts typically lack the authority to adjudicate on validity and infringement with respect to foreign patents.[41]

B. *Mandatory v. Voluntary Arbitration*

While *mandatory* global arbitration would produce similar outcomes to global litigation, it seems unclear how to create such an obligation in practice. This is

[41] Contreras, *Global Rate-Setting*, *supra* note 20.

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important because, unfortunately, *voluntary* global arbitration cannot play a similar role. Licensees unwilling to pay the royalty rate proposed by a patent holder could, in principle, voluntarily submit their pledge to an arbitrator that would produce a globally binding ruling. Yet they have no incentive to do so. Since there is no commitment to arbitration before the royalty is chosen, the option to arbitrate does not affect the implementer's incentives to engage in sequential litigation. The implementer will engage in socially costly sequential litigation (holdout) under the very same circumstances in which it did so in the absence of the arbitration alternative.

C. *Global Rate Setting*

In any event, as of today, we are not aware of any realistic initiative to create a multilateral institution with authority to resolve patent validity disputes globally, whether this is a court of justice or an arbitration tribunal. Yet, as noted by Contreras:

> Courts adjudicating FRAND disputes face a dilemma. On one hand, patents are issued under national law and, by definition, have legal effect only in the issuing jurisdiction. On the other hand, the parties to FRAND disputes are often multinational corporations with operations (and patents) in jurisdictions around the world. Moreover, many of these parties privately negotiate worldwide license agreements to cover their global operations, without regard for the particular patents issued in any given country.[42]

In the absence of a global rate setting body, as the one proposed by Contreras, we observe courts in various jurisdictions (for example, the United Kingdom and China) asserting the right to decide global royalty terms.[43] Because FRAND disputes are essentially contractual disputes, national courts may have the jurisdictional authority to determine a global rate for the portfolio licensed under the agreement at issue.[44]

The move toward global rate setting started in 2017, when the UK High Court for Patents ruled in *Unwired Planet v. Huawei* that it was authorized to set the terms of a global FRAND license between the parties, covering not only the SEP holder's UK patents but also foreign patents covered by its FRAND commitment.[45] The court concluded that a licensor and licensee acting reasonably and on a willing basis

[42] Jorge L. Contreras, *Anti-suit Injunctions and Jurisdictional Competition in Global FRAND Litigation: The Case for Judicial Restraint*, 11 N.Y.U. J. Intell. Prop. & Ent. L. 171, 172 (2021).

[43] Contreras, *Global Rate-Setting*, *supra* note 20.

[44] Jorge L. Contreras et al., *The Effect of FRAND Commitments on Patent Remedies*, in Patent Remedies and Complex Products: Toward a Global Consensus 160, 163 (C. Bradford Biddle et al. eds., 2019).

[45] Unwired Planet Int'l Ltd. v. Huawei Techs. Co. Ltd. [2017] UKSC 37, aff'd [2020] EWHC (Pat) 711 (Eng.).

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would agree on a worldwide license, since country-by-country licensing would be highly inefficient. A similar approach was taken by the US District Court for the Central District of California in *TCL v. Ericsson*.[46] Most recently, courts in China have also moved to adopt global FRAND rates.[47]

V. SETTING GLOBAL TERMS BY BIASED DOMESTIC COURTS

These developments have given rise to what Contreras characterizes as a "race to court,"[48] where licensors and licensees have been filing anti-suit injunctions (ASI),[49] anti-anti-suit injunctions (AASI),[50] and even anti-anti-anti suit injunctions (AAASI), seeking to influence which court ends up setting global royalty rates. Of course, these maneuvers only make sense because courts are heterogenous, with asymmetries driven by differences in legal statutes, case law, speed, or objectivity. Leaving aside differences in substantive law and procedure, these strategic races to the courthouse appear to be motivated by actual or perceived institutional capture and domestic favoritism. In short, foreign litigants may be trying to avoid Chinese courts because of fear of bias and vice versa. The race to court is in practice a race to the "home court."

A. *The Race to the Home Court*

Like other regulatory instruments, such as antitrust or merger control,[51] IP law and contract law enforcement might be used in unorthodox ways to favor domestic firms

[46] TCL Commc'n Tech. Holdings, Ltd. v. Telefonaktiebolaget LM Ericsson, 955 F.3d 1317 (Fed. Cir. 2020). The same is true of the N.D. Cal. ruling (later overturned) in FTC v. Qualcomm. FTC v. Qualcomm Inc., 411 F.Supp.3d 658 (N.D. Cal. 2019), *rev'd*, 969 F.3d 974 (Fed. Cir. 2020).

[47] Huawei Techs. Corp. Ltd. v. Conversant Wireless Licensing S.A.R.L., case ID: 2019 Zui Gao Fa Zhi Min Zhong No. 732, 733, 734 Part I (Sup. People's Ct., Aug. 28, 2020). An unofficial translation is available at https://patentlyo.com/media/2020/10/Huawei-V.-Conversant-judgment-translated-10-17-2020.pdf. Xiaomi Commc'n Tech. Co., Ltd. v. InterDigital Inc., case ID: 2020 E 01 Zhi Min Chu 169 (Wuhan Intermediate People's Ct., Hubai Province, Sept. 23, 2020). An unofficial translation is available at https://patentlyo.com/media/2020/10/Xiaomi-v.-InterDigital-decision-trans-10-17-2020.pdf; Guangdong OPPO Mobile Telecommunications Corp. Ltd. v. Sharp Corporation, case ID 2020 Yue 03 Min Chu No. 689-1 (Intermediate People's Court of Shenzhen City of Guangdong Province, Dec. 3, 2020). The Supreme People's Court upheld the Shenzhen ruling on Sept. 2, 2021.

[48] Contreras, *Anti-suit Injunctions and Jurisdictional Competition*, *supra* note 42.

[49] An anti-suit injunction (ASI) is an interlocutory *in personam* remedy issued by a court in one jurisdiction to prohibit a litigant from initiating or continuing parallel litigation in another jurisdiction. While an ASI can bind a party to litigation, it has no binding effect on a foreign court.

[50] AASI operates *in personam* prohibiting a litigant from taking a particular action (seeking or enforcing an ASI), rather than purporting to restrain the authority of a foreign court.

[51] Mario Mariniello, Damien Neven, & Jorge Padilla, *Antitrust, Regulatory Capture and Economic Integration*, Bruegel Pol'y Contribution (July 2015), www.bruegel.org/wp-content/uploads/imported/publications/pc_2015_11_.pdf.

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competing in global markets at the expense of foreign competitors and economic integration. A small country, or a country in which new technologies are mostly used as inputs by domestic manufacturers, might find it optimal to adopt a pro-implementer bias and, hence, use the law to reduce the cost of IP of its domestic firms. Lower IP prices need not have negative effects on that country's economy if the incentives of high-tech multinationals supplying domestic manufacturers to develop new technologies are warranted by bigger markets in other countries.

A country could, for example, use antitrust policy and, in particular, the laws against abusive conduct by dominant firms, opportunistically. Companies licensing their valuable IP to domestic manufacturers may be accused of charging excessive prices and compelled to license their IP at rates that are disproportionately low to grant domestic manufacturers a competitive advantage over their foreign counterparts, both domestically and in foreign markets.

These concerns are real. In February 2015, for example, the US chipmaker Qualcomm paid $975 million to Chinese authorities to end a 14-month antitrust investigation into its patent licensing practices.[52] The fine was then the largest fine in China's corporate history. The settlement required Qualcomm to reduce the royalty rates on its standard-essential patents applied to sales of mobile phone made in China by Chinese smartphone makers, such as Xiaomi, Lenovo, and Huawei. We do not intend to discuss whether the decision was justified or not. We simply note that the move must have helped Chinese manufacturers to compete against market leaders Apple and Samsung in the growing Chinese mobile phone market and, possibly, elsewhere.

More generally, research points out that domestic bias in law enforcement is pervasive – whether developed or developing countries, centers of innovation or centers of manufacturing, or other differences in industrial policy. Bhattacharya and coauthors, for example, show that there is a lower probability of adverse US court judgments for US domestic companies compared to foreign companies.[53] This could reflect a conscious bias (an explicit tool of industrial policy) or unconscious bias (that is, courts ideologically sympathetic to a particular position or domestic companies just know their way around the local legal system better).

B. *The Global Costs of Biased Domestic Enforcement*

Regulatory capture in the enforcement of competition, contract, and IP law could cause significant distributional effects, shifting rents from efficient and innovative foreign firms to less efficient domestic companies, to the ultimate detriment of local

[52] *Qualcomm Settlement with China's NDRC Removes Major Speedbump*, Forbes (Feb. 10, 2015), www.forbes.com/sites/patrickmoorhead/2015/02/10/qualcomm-settlement-with-chinas-ndrc-removes-major-speedbump/?sh=27342c24431a.

[53] Utpal Bhattacharya, Neal Galpin, & Bruce Haslem, *The Home Court Advantage in International Corporate Litigation*, 50 J.L. & Econ. 625 (2007).

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and foreign consumers. This reallocation of rents could distort incentives to invest and innovate and hence reduce the overall growth potential of the global economy. The risk of domestic bias also creates regulatory and legal uncertainty, thus reducing the incentives of foreign companies to invest both domestically and overall.

One can distinguish between four channels through which investment decisions can be affected by domestic bias in law enforcement. First, capture increases uncertainty: Political interference in the enforcement process makes it more difficult to predict the final outcome of a court case. Regardless of what that outcome could be, the mere inability to anticipate it reduces the incentive to invest.[54]

The second channel is through direct distorting effects: These arise if the main objective of political intervention is to protect domestic companies. Political intervention that biases enforcement in favor of local players might have effects on the competitiveness of foreign companies already present in the domestic market, undermining their competitive position in both domestic and international markets. Foreign companies may be forced to revise downward their expectations about future profits from innovation, which would reduce their incentives to invest and innovate.

The third channel is through indirect effects if the distortions introduced by political interference in law enforcement affect domestic markets in such a way that it is less appealing for foreign investors to produce or invest in that country.

Finally, there are potential dynamic effects. Strategic trade theory suggests that the more leeway countries have in using the law to pursue protectionist goals, the greater the risk that penalized companies' countries of origin will retaliate by implementing equally distorting measures. The end result is a reduction of the inflow and outflow of trade for all jurisdictions involved.[55]

C. *The Prisoners' Dilemma of Biased Domestic Enforcement*

In the long term, the pursuit of domestic industrial policy objectives through the (possibly unconscious) biased enforcement of the law is likely to backfire and generate negative effects for everyone. Any short-term advantages conferred on domestic firms by the strategic use of the domestic laws will evaporate once trading partners respond to those abuses and retaliate. A well-functioning global economy

[54] Brandon Julio & Youngsuk Yook, *Political Uncertainty and Corporate Investment Cycles*, 67 J. Fin. 45 (2012). The authors investigate the relationship between cross-border capital flows and host economies' political uncertainty. They find that the capital flow from US companies to their foreign affiliates drops by 12% during election years in host economies. Investment is lower when investors find it more difficult to anticipate future government policy.

[55] Michal S. Gal & Jorge Padilla, *The Follower Phenomenon: Implications for the Design of Monopolization Rules in a Global Economy*, 76 Antitrust L.J. 899 (2010).

requires laws designed and enforced without bias. Yet, countries and their companies may face a prisoners' dilemma: All of them would benefit if local courts seeking to adjudicate on global royalty terms acted objectively so that no litigant benefited from a home court advantage, but because all have the incentive to act opportunistically, they are likely to end up in a world where all litigants strive to get their disputes resolved by their local courts, making use of ASIs, AASIs, and AAASIs or whatever needed to secure and protect that advantage.

The impact of this prisoners' dilemma on royalty payments and, therefore, on the balance of interests between innovators and implementers is unclear. Assuming local courts adopt the objectives of their local constituencies, we may have pro-licensor rulings in jurisdictions where (pure or horizontal) innovators hold sway, pro-implementer rulings where implementers dominate, and unbiased decisions when neither group has greater political clout. However, irrespective of the direction of the bias, the uncertainty associated with its existence is what causes the problem.

Ultimately, our main concern is that this prisoners' dilemma may undermine the creation of the sort of global standards that have contributed so successfully in the past to the development and diffusion of technologies such as mobile telephony. Firstly, biased courts may shift rents away from innovators (respectively, implementers) if rates are decided by local courts biased in favor of local implementers (respectively, local innovators). Secondly, they may cause innovators (or implementers) to be under- or overcompensated depending on their nationality, irrespective of the incremental contributions of their technologies. Thirdly, biased adjudication may lead to conflicting legal determinations across jurisdictions and, therefore, to enhanced business uncertainty and protracted conflict. Lastly, and most importantly, for all these reasons, the decisions of domestically biased courts may cause the regional fragmentation of global standards into, for example, the United States, the European Union, and Chinese zones. These competing standards may compete outside their respective home bases, as GSM and CDMA did in the past.

Standards' success depends on their ability to take advantage of economies of scale and scope, which would be lost if standards become geographically fragmented. Competition across standards may result in wasted duplication of R&D expenses, limit the scope for specialization, and, ultimately, and perhaps more importantly, cause technological and economic divergence and raise new geopolitical tensions.

VI. SOLVING THE PRISONERS' DILEMMA

Contreras suggests that the solution to this dilemma could be that:

> while international bodies develop a more comprehensive, efficient and transparent methodology for assessing global "fair, reasonable and nondiscriminatory"

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(FRAND) royalty rates, national courts voluntarily "stand down" from assessing global FRAND rates and instead limit their assessments to FRAND royalty rates applicable to patents within their own jurisdictions.[56]

While we understand the logic of this proposal, we do not believe it to be the solution to the problem. The global adjudication of SEP disputes has a logic that cannot be denied: It makes no sense to resolve disputes involving SEP "global" portfolios on a "jurisdiction by jurisdiction" basis. The voluntary moratoria proposed earlier could perpetuate indefinitely. The solution is radical action: the creation of an impartial global FRAND rate setting tribunal.[57] SDOs' IP policies would require that SEP holders and implementers resolve their license disputes through that impartial body.

This is not a new solution. SDOs overcame self-interest from companies and countries when developing computing and communications standards. They need to do it again for remunerating contributions to developing and implementing those standards.

[56] Contreras, *Anti-suit Injunctions and Jurisdictional Competition*, *supra* note 42.

[57] One option would be to rely on the WIPO Arbitration and Mediation Center. Based in Geneva, Switzerland, with a further office in Singapore, the WIPO Arbitration and Mediation Center was established in 1994 to offer Alternative Dispute Resolution (ADR) options for the resolution of international commercial disputes between private parties. The subject matter of these disputes includes both contractual disputes (for example, patent and software licenses, trademark coexistence agreements, distribution agreements for pharmaceutical products, and research and development agreements) and noncontractual disputes (for example, patent infringement), including court referrals. WIPO disputes have involved parties based in different jurisdictions, including Austria, China, France, Germany, Hungary, India, Ireland, Israel, Italy, Japan, the Netherlands, Panama, Spain, Switzerland, the United Kingdom, and the United States of America. *WIPO Arbitration and Mediation Center*, WIPO, www.wipo.int/amc/en/center/background.html (last visited May 19, 2022).