

THE RECENT DOJ AND FTC POLICY SUGGESTIONS FOR STANDARD SETTING ORGANIZATIONS – THE WAY OUT OF STANDARD-ESSENTIAL PATENT HOLD-UP?

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When patent holders employ the threat of an injunction as a weapon against competitors, it raises eyebrows among antitrust lawyers and agencies instinctively. Such is the case when standard-essential patents are used to hold members of standard setting organizations hostage by threatening sunk technology investments. Prominently last year, Google purchased Motorola Mobility Inc., which included 17,000 patents predominately relating to smartphones, and Apple and Microsoft acquired Nortel Networks and its 6,000 telecommunications patents. The FTC and the DOJ reacted with concern about potential patent abuse in light of the ever-more salient “smartphone patent wars.”

In this setting, Renata Hesse, Deputy Assistant Attorney General at the DOJ, and Joseph F. Wayland, then Assistant Attorney General of the FTC, published governance suggestions aimed at lessening the likelihood of hold-up in the standardization process. This article applies a law and economics analysis to three of the suggestions: disclosure requirements, cross-licensing provisions, and limitations of exclusion through injunctions. The discussion addresses problems relating to joint negotiation and monopsony, as well as royalty stacking and Cournot complements. It demonstrates how cross-licensing among upstream firms can effectively raise their downstream rivals’ costs, and it explores the concept of “reverse hold-up.”

The article finally concludes that Hesse and Wayland identify critical issues, but fail to provide a fully satisfying solution to the problem of standard-essential patent hold-up.

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INTRODUCTION

“What hasn’t been said about patent hold-up in standard setting organizations (SSO)?” the discerning reader might ask. Since its beginnings¹ the issue has spurred an immense amount of research, has found its way into numerous litigations, and yet still appears to puzzle courts, economists and lawyers.² Antitrust agencies all over the world are discussing the problem. In the US, the Department of Justice (DOJ) and the Federal Trade Commission

¹ See Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 865 n. 115 (1990); see generally OLIVER E. WILLIAMSON, *THE ECONOMIC INSTITUTIONS OF CAPITALISM: FIRMS, MARKETS, RELATIONAL CONTRACTING* (1987).

² For an overview of relevant literature until 2009, see Thomas F. Cotter, *Patent Hold-up, Patent Remedies, and Antitrust Responses*, 34 J. CORP. L. 1151, 1151 nn.1-14 (2009).

(FTC) are focusing their efforts on reviewing the Intellectual Property Rights (IPR) policies of SSOs. Recently, both Renata Hesse,³ Deputy Assistant Attorney General at the DOJ, and Joseph F. Wayland,⁴ then Assistant Attorney General of the FTC, have introduced policy suggestions aimed at reducing the likelihood of hold-up in the standardization process.⁵ This article focuses on three of these suggestions. It argues that while Hesse and Wayland address the crucial issues of standard-essential patent hold-up, they remain precariously vague on pivotal points and overlook important repercussions of their suggestions. Presumably this will leave SSOs in a disturbing haze of uncertainty.

Both brevity and my intention to focus on a specific issue prompt me to establish some preliminary assumptions. I assume that patent hold-up does exist,⁶ that it results in significant deadweight loss,⁷ and that it reduces incentives of market players to invest in standard-specific applications, which are crucial to consumer welfare.⁸ Therefore I assume that hold-up can result in inefficient accumulation of market power.

³ Renata Hesse, Deputy Assistant Attorney Gen., U.S. Dep't of Justice, Six "Small" Proposals for SSOs Before Lunch, Remarks Prepared for the International Telecommunications Union Patent Roundtable (Oct. 10, 2012).

⁴ Joseph F. Wayland, Assistant Attorney Gen., U.S. Dep't of Justice, Antitrust Policy in the Information Age: Protecting Innovation and Competition, Remarks Prepared for the Fordham Competition Law Institute Annual International Antitrust Law and Policy Conference 5 (Sept. 21, 2012).

⁵ *Id.* at 3.

⁶ For literature arguing the contrary, see Cotter, *supra* note 2, at 1152 n.7.

⁷ Deadweight loss is a comparative term. It describes the difference between the total (i.e. consumer and producer) surplus attained in an inefficient market and a market in perfect competitive equilibrium, i.e. the point at which the value a consumer attaches to an additional unit equals the additional cost of production. Such inefficiencies can be caused by any external cost-increasing distortion that inhibits some amount of consumption, e.g. monopolies, taxes or tariffs. See DENNIS W. CARLTON & JEFFREY M. PERLOFF, *MODERN INDUSTRIAL ORGANIZATION*, 70-72 (4th ed. 2005); PAUL A. SAMUELSON & WILLIAM D. NORDHAUS, *ECONOMICS*, 182-83 (16th ed. 1998).

⁸ See Joseph Farrell, John Hayes Carl Shapiro & Theresa Sullivan, *Standard Setting, Patents and Hold-Up*, 74 *ANTITRUST L.J.* 603, 632 (2007); see generally, Cotter, *supra* note 2, at 1152 nn.7-11.

Before analyzing the individual suggestions in detail and formulating a conclusion, expedience suggests providing a brief overview of patent hold-up and the standard setting process in SSOs.

I

PATENT HOLD-UP, STANDARD SETTING ORGANIZATIONS, AND STANDARD-ESSENTIAL PATENTS

In Law and Economics the hold-up problem is seen as a form of duress.⁹ A party to a contract uses the investment costs its counterpart incurred in reliance on reciprocal compliance as leverage to extract a return higher than the value of its contractual performance. To understand this, consider the following:

Example 1: A has won a machine with which he intends to produce widgets. As it happens, no worker skilled in the use and maintenance of widget machines can be found. Therefore, A agrees to the following: B will undergo widget-machine training that costs \$1200 paid by A. Upon completion of this training, B will operate the machine for its entire 12-month durability at a monthly salary of \$100. After B has successfully completed the training, he insists on a monthly salary of \$199.91 instead.¹⁰

Here, B is holding up A by expropriating the return of his investment that cannot be recovered (so-called sunk costs).¹¹ Economists and intuition suggest that, once incurred, sunk costs should not influence a firm's subsequent economic decisions.¹² A should ignore the costs of the training when comparing B's offer to alternative strategies. He could either pay B a total wage of \$2399 or he could pursue an alternative strategy by paying for training and wage of C, which, absent hold-up, would total \$2400. Clearly, A has no rational choice but to accept the offer. Assume that the value of widget operation is the amount A and B agreed upon in the initial agreement, i.e. \$100. Then B has extracted a

⁹ Péter Cserne, *Duress*, in 6 CONTRACT LAW AND ECONOMICS 57, 68 (Gerrit De Geest ed., 2d ed. 2011).

¹⁰ For similar examples see ROBERT COOTER & THOMAS ULEN, LAW & ECONOMICS 345 (6th ed. 2012); Antonio Nicita & Ugo Pagano, Incomplete Contracts and Institutions, in THE ELGAR COMPANION TO LAW AND ECONOMICS 145, 148-49 (Jürgen G. Backhaus ed., 2d ed. 2005).

¹¹ ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS, 231-32 (8th ed. 2013).

¹² *Id.*; CARLTON & PERLOFF, *supra* note 7, at 29.

wage that exceeds the market value of his labor by an amount slightly less than the cost of A's alternative strategy.

The specific hold-up problem this paper addresses pertains to the standardization process in SSOs. Standards can be defined as "any set of technical specifications that either provides or is intended to provide a common design for a product or process."¹³ They are especially important for modern, high technology products. For instance, they ensure interoperability and make possible the use of networks, such as mobile telephone networks or the Internet.¹⁴ The pro-competitive benefits of standards are unanimously accepted.¹⁵ Notwithstanding, standardization carries some potentially anticompetitive baggage because it reduces competition to provide consumers with more choice.¹⁶

Standardization processes usually take place in private standard setting organizations, in which competing firms participate as members in a standard's adoption.¹⁷ For a number of reasons, the existence of SSOs is a conspicuous matter from the point of view of antitrust law.¹⁸ First, they provide a communication forum amongst competitors that arguably facilitates collusion.¹⁹ Furthermore, standardization processes can increase prices for consumers for the sake of other motives, e.g. social utility. For example, the members might agree to standardize certain minimum quality thresholds or eligibility

¹³ Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL. L. REV. 1889, 1896 (2002).

¹⁴ Christine Varney, Assistant Attorney Gen., U.S. Dep't of Justice, Promoting Innovation Through Patent and Antitrust Law and Policy, Remarks Prepared for the Joint Workshop of the U.S. Patent and Trademark Office, the Federal Trade Commission, and the Dep't of Justice on the Intersection of Patent Policy and Competition Policy: Implications for Promoting Innovation, 5-6 (May 26, 2010); Damien Geradin & Miguel Rato, *Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent Hold-up, Royalty Stacking and the Meaning of Fraud*, 3 EUR. COMPETITION. J. 101, 103-04 (2007).

¹⁵ See, e.g., HERBERT HOVENKAMP ET AL., IP AND ANTITRUST, AN ANALYSIS OF ANTITRUST PRINCIPLES APPLIED TO INTELLECTUAL PROPERTY LAW § 35.1. (2d ed., 2012); Lemley, *supra* note 13, at 1900-01.

¹⁶ Lemley, *supra* note 13, at 1900.

¹⁷ HOVENKAMP ET. AL., *supra* note 15, at § 35.1 (stating that standards might also be adopted *de facto* or by government action).

¹⁸ *Id.* at § 35.2.

¹⁹ *Id.*

requirements, sparing the consumer low quality goods but depriving them of the choice.²⁰ Finally, members might also be tempted to impose standards where there is no immediate need for them. This can decrease consumer choice and restrict competition for best designs.²¹ Nonetheless, the general desirability of standardization has led to widespread acceptance of SSOs.²² All that should be noted here is that the legality of the existence of SSOs is not obvious from the perspective of traditional antitrust doctrine. As we will see, this has implications for the limits of SSO policies and bylaws.

Now, to understand the type of hold-up relevant to this paper, consider the following:

Example 2: Firms A, B, and C are members of the D-SSO and are seeking to set a standard relevant to mobile phones. Once adopted, B and C, who are manufacturers of mobile phones, invest considerably in production sites, equipment and design of their new cell phones based on the standard. After a while, A discloses that it in fact owns a patent essential²³ to and incorporated by the standard. What will A do?

Quite possibly, A will now demand royalty fees from B and C. This would not be of significance if not for the threat of A obtaining an injunction against the manufacture or sale of the cell phones by B and C. According to the standard view in the literature on patent hold-up, the threat of injunctive relief

²⁰ *Id.*

²¹ *Id.*

²² See Lemley, *supra* note 13, at 1900.

²³ A patent is “essential” to a standard if “there are no alternative ways to implement a particular element of a standard without infringing the protected technology.” Rudi Bekkers & Andrew Updegrove, *A study of IPR policies and practices of a representative group of Standards Setting Organizations worldwide*, 34 (2012), http://sites.nationalacademies.org/PGA/step/IPManagement/PGA_072197. This definition is not completely convincing, because alternative implementation paths often do exist that allow firms to design around the allegedly infringed patent. Yet, these design alternatives usually will be more cost-intensive than the royalty rates demanded by the patent owner *and* the firm might not know whether the re-design will itself infringe other patents. See Daniel L. Rubinfeld & Robert Maness, *Strategic Use of Patents: Implications for Antitrust*, in ANTITRUST, PATENTS AND COPYRIGHT: EU AND US PERSPECTIVES, 85, 89 (Francois Leveque & Howard Shelanski eds. 2005); see Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19 J. ECON. PERSP. 75, 82 (2005).

provides the patent holder with leverage to extract a royalty rate that exceeds the value of the patents' contribution to the end product.²⁴ In other words, as in example 1 above, A can potentially extract a royalty rate from both B and C that is slightly below their respective sunk investment costs. On this view, the peculiarities of the standardization process make it susceptible to the misuse of patents and allow for the amplification of the effect of hold-up behavior.

SSOs have reacted to this problem by implementing intellectual property rights (IPR) policies that structure the standardization process. These policies include obligations on the members that aim to protect manufacturers and assure uninhibited standard adoption and implementation. Yet, SSOs are confronted with a governance dilemma: the more extensive and effective the policy, the less attractive membership becomes and the lower the willingness of members to provide their efforts and technology to the adoption of a standard.²⁵ On the other hand, a lax IPR policy can raise serious anticompetitive concerns attracting the attention of antitrust agencies.²⁶ It is of no surprise then, that SSO IPR policies and their treatment of standard-essential patent hold-up have become central issues for antitrust law.

II THE POLICY SUGGESTIONS

This section will focus on three of the policy suggestions for SSOs that have been made by both Joseph Wayland and Renata Hesse. It should be mentioned that Wayland and Hesse proposed these suggestions in speeches at international conferences, and thus they carry no binding legal weight. However, because FTC and DOJ enforcement decisions are largely discretionary, market participants will most definitely monitor any public comments made by antitrust officials. The suggestions will therefore likely have an immediate effect on the conduct of SSOs.

²⁴ Cotter, *supra* note 2, at 1160-61 (citing Mark A. Lemley & Carl Shapiro, *Patent Hold-up and Royalty Stacking*, 85 TEX. L. REV. 1991, 1992-93 (2007)).

²⁵ See Bekkers & Updegrave, *supra* note 23, at 4; Joseph Scott Miller, *Standard Setting, Patents, and Access Lock-in: RAND Licensing and the Theory of the Firm*, 40 IND. L. REV. 351, 353 (2007) (detecting in this dilemma a “tension between free access and tight control.”).

²⁶ See Bekkers & Updegrave, *supra* note 23, at 4.

The following three recommendations will form the basis of my analysis: (I) adopting disclosure requirements, (II) implementing rules concerning the permissibility of cross-licenses, and (III) limiting injunctive relief for patents subject to reasonable and non-discriminatory (RAND) commitments.²⁷ The analysis will be structured in three steps. After presenting the specific suggestion and explaining its context, the article will identify the problem at its core by skimming relevant literature and case law. Finally, the article will analyze whether the suggestion appropriately addresses the contentious issues. This framework is meant to elucidate the strengths and weaknesses of each suggestion and will lend support for the article's conclusion.

A. *Disclosure*

1. *The Policy Suggestion*

With their first suggestion, Hesse and Wayland propose the adoption of disclosure rules for standardization processes. SSO members are to identify “in advance, if any proposed technology path involves IP which the patent holder has not agreed to license on RAND terms.”²⁸ Disclosure requirements are not at all new and can vary greatly in their scope and determinateness.²⁹ Essentially, they require some sort of publication of patents possibly tangential to the technology area of the standard.

2. *The Problem*

Patent hold-up is more likely to occur where SSO members are imperfectly informed about the existence of patents the adopted standard will be encumbered by. Yet, the patent application process does little to mitigate the issue.

²⁷ What exactly “RAND” means in the ambit of standardization processes is the matter of some discussion. For a good overview and further literature, *see generally* Miller, *supra* note 25, at 355-59 (stating that “by making this promise all the participants who own patents in the resulting standard grant the adopter community an irrevocable right to use its patented technology to comply with the standard in exchange for a reasonable royalty and other reasonable terms, the details of which are negotiated later without any possibility of a court injunction.”).

²⁸ Wayland, *supra* note 4, at 5; *see* Hesse, *supra* note 3, at 10.

²⁹ *See* Bekkers & Updegrove, *supra* note 23, at 48-49.

Patent applications are kept secret for 18 months after their filing date.³⁰ This will often allow patent holders to delay disclosure until after the standard is set. It leaves the other SSO members behind a “veil of ignorance”³¹ which is only lifted after the “fundamental transformation” of the market has taken place.³² In other words, while different technologies competed for inclusion before standardization, now competition for substitution is restricted as lock-in³³ and network effects³⁴ make redesign costly and unprofitable.³⁵

³⁰ 35 U.S.C. § 122(b) (2006). This is the result of the American Inventors Protection Act of 1999 that sought to prevent the existence of so-called “submarine patents.” Before, applications were kept secret until the issuance of the patent. This led to duplicative research by inventors unaware of the pending application that now were potentially infringing the issued patent. See JANINE M. MUELLER, AN INTRODUCTION TO PATENT LAW 25 n.73, 53 (3d ed. 2009).

³¹ Miller, *supra* note 25, at 366-67 (citing JOHN RAWLS, THEORY OF JUSTICE 136-142 (1971)).

³² WILLIAMSON, *supra* note 1, at 61-63 by which is meant “what was a large numbers bidding condition at the outset is effectively transformed into one of bilateral supply thereafter.” See, e.g., Rambus, Inc., FTC Docket No. 9302, Opinion of the Comm’n 3 (Aug. 2, 2006), available at <http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf>.

³³ “Lock-in” describes a situation in which the alteration of a given situation is uneconomical for an actor on account of switching and other transaction costs. Therefore, it “hinders customers from changing suppliers in response to (predictable or unpredictable) changes in efficiency, and gives vendors lucrative ex post market power over the same buyer in the case of switching costs (or brand loyalty), or over others with network effects.” Joseph Farrell & Paul Klemperer, *Coordination and Lock-In: Competition with Switching Costs and Network Effects*, in 3 HANDBOOK OF INDUSTRIAL ORGANIZATION 1968, 1970 (abstract) (Mark Armstrong & Robert Porter eds., 2007), available at http://www.nuff.ox.ac.uk/users/klemperer/Farrell_KlempererWP.pdf (found in Farrell et al., *supra* note 8, at 617 n49).

³⁴ Also called “positive network externalities,” network effects refer to the increase of the individual value of a product in response to the growth of its purchase by others. See PINDYCK & RUBINFELD, *supra* note 11, at 135. In standardization processes, this means that the increased value of the product for the individual consumer due to network effects directly corresponds to an increase in the leverage power of the standard-essential patent holder *vis-à-vis* the alleged infringers; see Farrell et al., *supra* note 8, at 616.

³⁵ See Farrell et al., *supra* note 8, at 607; George S. Cary, Mark W. Nelson, Steven J. Kaiser & Alex R. Sistla, *The Case for Antitrust Law to Police the Patent Hold-up Problem in Standard Setting*, 77 ANTITRUST L. J. 913, 914 (2011); Andreas Klees, *Das Missbrauchsverbot für Beherrschende Unternehmen*, in *Computerrechts-Handbuch*, ch. 1, pt 6, ¶ 75 (Wolfgang Kilian & Benno Heussen eds., 2012).

Moreover, patent law may even incentivize opportunism. A particularly egregious example of this is the divisional application procedure.³⁶ A divisional patent application is filed after a “parent” application has been filed and is pending. Such applications can “carve out” part of the subject matter of parent applications that encompass more than one invention. The result is, assuming the applications are successful, the grant of two (or more) individual patents by the United States Patent and Trademark Office (USPTO).³⁷ Alas, patent law considers the effective filing date of this type of subsequent application to be that of the parent application.³⁸ To understand how a divisional application can be misused in the standardization process, consider the following:

Example 3³⁹: Firm B is a member of the D-SSO and is participating in a standardization process. It files an overly broad patent application with the USPTO that pertains to the technology potentially covered by the standard. By including more than one invention in the application, B ensures that it lacks the “unity of invention” condition to patentability.⁴⁰ The USPTO will now demand the “application to be restricted to one of the inventions.”⁴¹ Because of its participation in the continuing standardization process, B knows which technology the standard covers. Therefore, B files a “divisional application” that “carves out” this technology

³⁶ See 35 U.S.C. § 121 (2006).

³⁷ See MUELLER, *supra* note 30, at 55-56; LESTER HORWITZ, PATENT OFFICE RULES AND PRACTICE 201.06 (8d ed., 2003).

³⁸ 35 U.S.C. § 120 (2005) (“Benefit of Earlier Filing Date in the United States”); see MUELLER, *supra* note 30, at 45-46; PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW, ¶ 712a (3d ed. 2008).

³⁹ See AREEDA & HOVENKAMP, *supra* note 38, at ¶ 712b.

⁴⁰ Jon W. Henry, *Some Comments on “Independent and Distinct” Inventions of 35 Usc 121 and Unity of Invention (Part i)*, 84 J. PAT. & TRADEMARK OFF. SOC’Y 745, 777 (2002) (citing 37 C.F.R. 1.141(a) (2006)); see also MUELLER, *supra* note 30, at 56 (“A patent may claim only a single invention, so any other invention must be “divided out” and claimed in a separate application.”).

⁴¹ A so-called “restriction requirement,” 35 U.S.C. § 121 (2005).

from the parent application as an individual invention. Once the patent is granted, B sues its competitors for infringement.⁴²

Strikingly, the Federal Circuit has approved the practice of amending a patent application with the intention “to cover a competitor’s product the applicant’s attorney has learned about during the prosecution of a patent application.”⁴³ Granted, “the new claims must find adequate support in the original application.”⁴⁴ Nonetheless, a firm participating in a standard setting process can secretly tailor an original application to encompass technologies it now knows are essential to the standard. Subsequently, it can hold-up competitors locked-in by sunk investments by threatening injunctions in order to procure unreasonable royalty payments.⁴⁵

Such conduct has also been the subject of antitrust litigation. In *Rambus Inc. v. FTC*⁴⁶ the court was confronted with a monopolization claim under § 2 of the Sherman Act brought by the FTC against Rambus, a developer of computer memory technologies. The FTC accused Rambus of using its membership in JEDEC, an SSO, to gain “information about the pending standard, and then amend[ing] its patent application to ensure that subsequently-issued patents would cover the ultimate standard.”⁴⁷ The court disagreed with the FTC on the monopolization claim. It had not been shown whether absent the alleged deception, JEDEC would *either* have used a “nonproprietary standard” *or* extracted a RAND commitment from Rambus.⁴⁸ If the FTC could not prove the former, it had only proven deceptive behavior, which in itself did not constitute an antitrust violation.⁴⁹ The case shows the vice and virtues of disclosure rules. First, JEDEC had adopted an IPR policy with a disclosure

⁴² What is important to keep in mind is that if B had filed a first application *after* adoption of the standard, the standardized technology would be considered prior art and subsequently denied on account of the “novelty” requirement of 35 U.S.C. § 102 (2006).

⁴³ *Kingsdown Med. Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 874 (Fed Cir 1988); AREEDA & HOVENKAMP, *supra* note 38 at ¶ 712a n.7.

⁴⁴ AREEDA & HOVENKAMP, *supra* note 38 at ¶ 712n n.7.

⁴⁵ AREEDA & HOVENKAMP, *supra* note 38 at ¶ 712b.

⁴⁶ *See Rambus Inc. v. F.T.C.*, 522 F.3d 456 (D.C. Cir. 2008); AREEDA & HOVENKAMP, *supra* note 38 at ¶ 712b.

⁴⁷ AREEDA & HOVENKAMP, *supra* note 38 at ¶ 712b.

⁴⁸ *Rambus Inc.*, 522 F.3d at 462; AREEDA & HOVENKAMP, *supra* note 38 at ¶ 712b.

⁴⁹ *Rambus Inc.*, 522 F.3d at 464; AREEDA & HOVENKAMP, *supra* note 38 at ¶ 712b.

requirement. However, it proved insufficient in the case of divisional patents. In a case brought by one of Rambus' competitors, the court found the requirement far too imprecise to create an obligation to disclose future plans to "modify applications."⁵⁰ Arguably, had JEDEC's disclosure requirement been more precise, Rambus would more likely have felt obligated to disclose its pending divisional patent applications. On the other hand, the case also shows that deception itself is not sufficient for a monopolization claim. The court required a showing of a harm "to the competitive process" precisely because of the deception.⁵¹ In light of this, it is conceivable that the mere existence of a precise disclosure rule in a SSO's IPR policy would not subject all forms of deceptive behavior to antitrust liability.

Thus, a proposal to establish disclosure requirements is not surprising. It is consistent with the agencies' earlier remarks⁵² and has been mentioned by scholars as a tool to mitigate hold-up.⁵³ Rules for disclosure aim to enable

⁵⁰ *Rambus Inc. v. Infineon Tech. AG*, 318 F.3d 1081, 1102 (Fed. Cir. 2003). It criticized JEDEC's disclosure policy as containing "a staggering lack of defining details (...)." In fact, it found no express obligation of disclosure within JEDEC's patent policy. *AREEDA & HOVENKAMP*, *supra* note 38 at ¶ 712b.

⁵¹ *Rambus*, 522 F.3d at 465 (citing *NYNEX Corp. v. Discon, Inc.*, 525 U.S. 128, 136, 139 (1998)); *id.* at 466 (distinguishing *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297 (3d Cir. 2007)) ("To the extent that the ruling (which simply reversed a grant of dismissal) rested on the argument that deceit lured the SSO away from non-proprietary technology [...] it cannot help the Commission in view of its inability to find that Rambus's behavior caused JEDEC's choice; to the extent that it may have rested on a supposition that there is a cognizable violation of the Sherman Act when a lawful monopolist's deceit has the effect of raising prices (without an effect on competitive structure), it conflicts with *NYNEX*.").

⁵² See Letter from Thomas O. Barnett, Assistant Attorney Gen., U.S. Dep't of Justice, to Michael A. Lindsey, Esq., Dorsey & Whitney LLP (April 30, 2007) (on file with Department of Justice), 9-10; Letter from Thomas O. Barnett, Assistant Attorney Gen., U.S. Dep't of Justice, to Robert A. Skitol, Esq., Drinker, Biddle, and Reath, LLP (Oct. 30, 2006), (on file with Department of Justice) 9; R. Hewitt Pate, Assistant Attorney Gen., U.S. Dep't of Justice, Remarks at EU Comp Workshop, Competition and Intellectual Property in the US: Licensing Freedom and the Limits of Antitrust (June 3, 2005), 10; *Rambus, Inc.*, FTC Docket No. 9302, Opinion of the Comm'n 4 (Aug. 2, 2006), available at <http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf>.

⁵³ Lemley, *supra* note 13, at 1904; Farrell et al., *supra* note 8, at 624; Gil Ohana, Marc Hansen, Omar Shah, *Disclosure and Negotiation of Licensing Terms Prior to Adoption of Industry Standards: Preventing Another Patent Ambush?*, 24 EUR. COMPETITION L.R. 644, 646

participants to weigh the costs of available standardization paths in order to find the most cost-efficient outcome available. In this way they prevent the inefficient acquisition of market power.⁵⁴ The question of concern here is: does the policy suggestion address the contentious issues?

3. Analysis

The policy suggestion is, perhaps intentionally, unclear on which mechanisms would be most helpful in confronting patent hold-up. This section will focus on three possible mechanisms.⁵⁵

i. Pure Disclosure Rule

A simple disclosure rule requires SSO members to inform other members of patents relevant to a possible technology path that are not yet subject to a RAND licensing obligation.⁵⁶ Such a rule would not however require a member to make specific RAND licensing commitments *ex ante*. The goal is generally to “minimize the possibility of inadvertent infringement of the IPR.”⁵⁷ However, while a pure disclosure rule certainly is helpful in some cases, it falls short of effectively countervailing patent hold-up.⁵⁸ Most SSOs have adopted disclosure rules in their patent policies.⁵⁹ Yet, as *Rambus* shows, IPR policies with pure disclosure requirements are often not sufficient to prevent hold-up.

Therefore, it is unclear why Wayland and Hesse are stating the obvious, rather than addressing the more pressing questions. Are SSOs concerned about

(2003); David J. Teece & Edward F. Sherry, *Standards Setting and Antitrust*, 87 MINN. L. REV. 1913, 1938 (2003).

⁵⁴ See Farrell et al., *supra* note 8 at 609.

⁵⁵ For a variety of possible disclosure and licensing rules in IPR policies, see generally Bekkers & Updegrove, *supra* note 23.

⁵⁶ Sew, e.g., ETSI Rules of Procedure § 6.4 (2008), available at http://www.etsi.org/WebSite/document/Legal/ETSI_IPR-Policy.pdf.

⁵⁷ NFC Forum, Inc. Intellectual Property Rights, 1 (2004), available at http://www.nfc-forum.org/join/join_thanks/NFC_Forum_IPR_POLICY.pdf.

⁵⁸ Bekkers & Updegrove, *supra* note 23, at 98.

⁵⁹ Lemley, *supra* note 13, at 1904.

what constraints antitrust law places on the extent and permissibility of further-reaching *ex ante* disclosure mechanisms?⁶⁰ For example, could SSOs require disclosure of maximum royalty rates and most restrictive licensing terms?⁶¹ Is a rule that establishes joint negotiation on licensing terms by SSO members or the SSO itself permissible?⁶² The DOJ and FTC have principally accepted both joint negotiation and most restrictive licensing terms and have signaled their intent to apply mere rule of reason scrutiny in the past.⁶³ Surprisingly however, the suggestions make no mention of them. This silence is striking as it aggravates existing legal uncertainty. Notwithstanding, it seems necessary to assess whether these rules could potentially alleviate the hold-up problem.

ii. Joint Negotiation Rules

A joint negotiation procedure would enable SSO members to collectively negotiate the licensing terms of a patented technology during the standardization process. Such a rule would necessarily accompany an *ex ante* disclosure requirement as described above. Critics of joint negotiation rules focus on two efficiency concerns: allocative⁶⁴ and dynamic efficiency.⁶⁵

It is argued that joint negotiation rules could lead to a loss in allocative efficiency resulting from monopsony power⁶⁶ on behalf of the licensees.⁶⁷ Standard monopsonist models assume a static deadweight loss as the result of a

⁶⁰ See Farrell et al., *supra* note 8, at 626; John J. Kelly & Daniel L. Prywes, *Safety Zone for the Ex Ante Communication of Licensing Terms at Standard-Setting Organizations*, Antitrust Source (Mar. 2006), 1; see also Barnett (2007), *supra* note 52, at 4.

⁶¹ The VITA patent policy included this rule. Barnett (2006), *supra* note 52, at 4; Cotter, *supra* note 2, at 1202; Farrell et al., *supra* note 8, at 631.

⁶² E.g., Cotter, *supra* note 2, at 1202; Farrell et al., *supra* note 8, at 632.

⁶³ Cotter, *supra* note 2, at 1202-3; Barnett (2006), *supra* note 52, at 8, 9 n.27; U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION, 52 (2007).

⁶⁴ "The use of economic resources that produces the maximum level of satisfaction possible with the given inputs and technology." SAMUELSON & NORDHAUS, *supra* note 7, at 744.

⁶⁵ An economy is dynamically efficient if it not only ensures current, static efficiency benefits, but also long-term benefits, such as innovation. J. Gregory Sidak, *Patent Hold-up and Oligopsonistic Collusion in Standard-Setting Organizations*, 5(1) J. COMP. L. & ECON. 123, 141 (2009).

⁶⁶ For a good explanation of monopsony power and monopsonist buyers, see PINDYCK & RUBINFELD, *supra* note 11, at 385.

⁶⁷ Sidak, *supra* note 65 at 142; see Cotter, *supra* note 2, at 1202 n.282.

decrease in demand below competitive levels.⁶⁸ Yet, Farrell et al. claim that such concerns are not relevant to IP licenses as supply curves in these markets are flat.⁶⁹ This is also true for the marginal cost curve of intellectual property, which equals zero.⁷⁰ This is because the use of an additional unit is cost-free. It follows that the price of a license is not a function of the buyers' demand. Therefore, if the use of monopsony power by the jointly acting buyers leads to a reduction of the royalty rate of the patent, the amount of supply will not be affected. The effect of monopsony power is unnoticeable and the relation between demand and supply is much like in a competitive market.⁷¹ The purchase of an additional unit does not affect the price of those already purchased. For antitrust purposes this is important because even if the royalty fee is set at a sub-competitive level on account of monopsony power, this merely leads to "redistribution of surplus from the sellers to buyers."⁷² However, a resource allocation problem, i.e. a decrease in total supply, does not ensue. If this is the case, rule of reason applies and SSOs can provide pro-competitive justifications by proving dynamic efficiencies resulting from joint conduct.⁷³ Specifically in the case of *ex ante* joint negotiations, SSOs could allege that they simply reschedule licensing negotiations to occur before lock-in and network effects take hold. In doing so, they mitigate the market power of patent holders and thereby allow for more vigorous price competition before standard adoption.⁷⁴ This could decrease royalty rates and lower prices of end products.

⁶⁸ Roger D. Blair & Jeffrey L. Harrison, *Antitrust Policy and Monopsony*, 76 CORNELL L. REV. 297, 303 (1991); PINDYCK & RUBINFELD, *supra* note 11, at 382-84; *see* Farrell et al., *supra* note 8, at 632 ("The classic danger associated with collective negotiation is that, in order to depress prices, buyers collectively (facing an upward-sloping supply curve) will choose a smaller quantity than would be efficient or than they would individually.").

⁶⁹ Farrell et al., *supra* note 8, at 632; Hillary Greene, *Non-Per Se Treatment of Buyer Price Fixing in Intellectual Property Settings*, 2011 DUKE L & TECH. REV. 4, ¶ 31-32 (2011); Sidak, *supra* note 65, at 151-160.

⁷⁰ Greene, *supra* note 69, at ¶ 31.

⁷¹ *See* Sidack, *supra* note 31, at 155-56, who accepts this premise if output represents the number of licenses, but calls the observation "trivial" because it doesn't focus on the ramifications for dynamic efficiencies; *see also* CARLTON & PERLOFF, *supra* note 7, at 57.

⁷² Greene, *supra* note 69, at ¶ 31.

⁷³ *See* Cotter, *supra* note 2, at 1202-1203.

⁷⁴ For *ex ante* group negotiations, *see, e.g.*, U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, *supra* note 63, at 52.

But in the longer term, monopsony could lead to unsustainably low royalty rates thereby ultimately deterring future innovation.⁷⁵ Gregory Sidak claims joint negotiation results in dynamic inefficiencies as soon as it pressures royalty rates to equal marginal cost.⁷⁶ Only rates that enable licensors to recoup costs sunk on successful *and* unsuccessful inventions provide a reasonable incentive for firms to engage in high cost innovation.⁷⁷ The defendants in *Sony Electronics, Inc. v. Soundview Technologies, Inc.* challenged this view.⁷⁸ Sony argued that it was in the interest of the buyers of technology to uphold incentives for the innovation their business model depended on. The Court rejected the argument: “[B]usiness conduct is not always rational, and economic actors do not always have access to perfect information, the utopian ideal of economics.”⁷⁹

In my view, Sidak raises an important point about the source of patent hold-up. Patent law contains an incentive scheme, which grants an exclusive right to the licensor and allows him to charge whatever rate he can profitably obtain on the market.⁸⁰ Arguably, this is a structural flaw of patent law itself. But one should be mindful of modifying normal competitive market mechanisms to alter unreasonable, yet legislatively intended results of patent law. Policies enabling SSO members to collectively negotiate license terms come close to allowing oligopsonist collusion. Such market alterations directly impact the “implicit incentive/access tradeoff” scheme of patent law.⁸¹ The

⁷⁵ Richard Schmalensee, *Standard-Setting, Innovation Specialists, and Competition Policy*, 24-25 (April 30, 2009), available at SSRN: <http://ssrn.com/abstract=1219784>; see also Greene, *supra* note 69, at ¶ 36.

⁷⁶ Sidak, *supra* note 65, at 157.

⁷⁷ *Id.* at 158; Sidak’s argument rests on his understanding that patent hold-up, if it exists, is merely a legitimate means to reap the benefits of the legally awarded position of exclusivity. Cotter, *supra* note 2, at 1204. As mentioned above, I presuppose the existence of patent hold-up for the purpose of this paper.

⁷⁸ *Sony Elecs., Inc. v. Soundview Tech., Inc.*, 157 F. Supp. 2d 180, 185 (D. Conn. 2001).

⁷⁹ *Id.* at 186.

⁸⁰ See Cotter, *supra* note 2, at 1205; Geradin & Rato, *supra* note 14, at 102, 111. The incentive argument has also been brought up by the Supreme Court, when it stated that “the opportunity to charge monopoly prices” attracts “business acumen”. *Verizon Commc’ns, Inc. v. Trinko*, 540 U.S. 398, 407 (2004).

⁸¹ Cotter, *supra* note 2, at 1205 (“As long as patent law allows patentees to charge whatever the market will bear for their technology, joint conduct aimed to lower that price interferes with patent law’s implicit incentive/access tradeoff.”).

resulting repercussions for dynamic efficiency are unclear. While there are pro-competitive benefits to joint negotiation rules, it seems preferable to support SSO policies that do not interfere with the market's price system. Beyond that, a reform of patent law would more likely be able to avoid inconsistencies resulting from the prevention of the hold-up phenomenon.

iii. Most Restrictive Licensing Terms Disclosure Rules

These rules impose an obligation on the SSO's members to make binding commitments *ex ante* as to the maximum royalty fee and other conditions they will use in licensing contracts.⁸² In contrast to joint negotiation rules, they do not necessarily presuppose *ex ante* disclosure, although such conjunction might be advisable.

There are a number of arguments for and against these rules. Obviously, such requirements could lessen uncertainty SSO members face when calculating the future cost of a specific standardization path.⁸³ Information on maximum rates and conditions could therefore improve the economic quality of standard adoption decisions. Accordingly, such terms could alleviate the probability of welfare losses on account of imperfect information.⁸⁴ Also, they could competitively restrain rates patent holders demand *ex ante* in order to increase the chances for their patent to be included in the standard.⁸⁵ Essentially, price competition could ensue before firms are locked into the standard.

On the other hand, anticompetitive effects are conceivable.⁸⁶ It is argued that information on maximum licensing terms could allow SSO members to pressure patent holders into lowering rates, raising similar dynamic efficiency

⁸² See Bekkers & Updegrove, *supra* note 23, at 94.

⁸³ See Knut Blind et al., Directorate Gen. for Enter. & Indus. of the Eur. Comm'n, *Study on the Interplay between Standards and Intellectual Property Rights*, 25 (Apr. 2011), available at http://ec.europa.eu/enterprise/policies/european-standards/standardisation-policy/policy-activities/intellectual-property-rights/index_en.htm.

⁸⁴ Geradin & Rato, *supra* note 14, at 137–38; Schmalensee, *supra* note 75, at 27; U.S. Dep't of Justice & Fed. Trade Comm'n, *supra* note 32, at 54; Letter from Thomas O. Barnett, Assistant Attorney Gen., U.S. Dep't of Justice, to Michael A. Lindsey, Esq., *supra* note 52, at 10; Bekkers & Updegrove, *supra* note 23, at 95.

⁸⁵ Bekkers & Updegrove, *supra* note 23, at 95.

⁸⁶ For a full study, see Blind et al., *supra* note 83.

concerns as discussed above.⁸⁷ Moreover, *ex ante* RAND commitments are often vague and regularly entail costly disputes on their interpretation, specifically when licensors make sham proposals in order to formally fulfill their disclosure commitments.⁸⁸ These anticompetitive effects need to be addressed in the antitrust analysis, but the pro-competitive justifications available to SSOs are considerable.

Nonetheless, if phrased correctly it seems that most restrictive licensing obligations provide necessary information that inform beneficial calculations and market-based results.

iv. Conclusion

Presumably, the policy suggestion will leave many SSOs disappointed. The agencies do not address the most pressing issues. What is more, the policy suggestion encompasses “any proposed technology path.”⁸⁹ Such a wording would leave disclosure obligations dangerously vague and broad. Two consequences should be noted here. First, transaction costs might rise to prohibitively high levels if firms, in order to comply with their obligations, were pressed to provide vast amounts of information. SSO members would need considerable time to review all submitted documents, leading to more lengthy standardization processes. It is also possible that members would be incentivized to be excessively compliant by disclosing a large amount of their patents and thereby further complicating the process. On the other hand, most restrictive licensing restrictions could lessen these incentives. If a firm has made *ex ante* licensing commitments, over-disclosure would create a risk of granting blanket licenses to all disclosed patents.⁹⁰ This might restrict the scope of disclosure to more manageable levels. Thus, a disclosure obligation in

⁸⁷ Damien Geradin & Anne Layne-Farrar, *The Logic and Limits of Ex Ante Competition in a Standard-Setting Environment*, 3 COMP. POL. INT. 79, 103 (2007); Blind et al., *supra* note 83, at 26.

⁸⁸ See, e.g., Certain Gaming & Entm’t Consoles, Related Software, & Components Thereof, Inv. No. 337-TA-752, 2012 WL 1704137, at *167 (USITC Apr. 23, 2012) (Initial Determination) (discussed *infra* C.III.2.b).

⁸⁹ Wayland, *supra* note 4, at 9.

⁹⁰ Mark A. Lemley, *Ten Things to Do About Patent Hold-up of Standards*, 47 B.C. L. REV. 149, 157 (2007).

conjunction with a most restrictive licensing commitment could be an acceptable IPR policy for SSOs.

At any rate, the silence concerning the permissibility of joint negotiations and most restrictive licensing terms revives uncertainty about their antitrust implications. Wayland and Hesse have chosen to make obvious as well as indeterminate statements. Conceivably, this may be detrimental to the standard setting process as SSOs balance the risk of hold-up with the chances of antitrust litigation. These uncertainties might also leave firms reassessing the benefit of further participation in SSOs.⁹¹

B. Cross-Licenses and Royalty Stacking

1. The Policy Suggestion

Wayland proposes to give licensees “the option to license RAND encumbered patents declared essential to a standard on a cash-only basis and allowing voluntary cross-licensing.”⁹² Thus, the suggestion proposes a choice rule. Cross-licensing agreements involve two firms that license a number of their respective patents to each other.⁹³ Such cross-licenses will often not be a viable strategy for small firms or manufacturers with no particular patent portfolio. Cash-only licenses would seem more appropriate for such firms.

2. The Problem

In order to understand the problem this suggestion addresses, a brief analysis of the vices and virtues of cross-licensing is necessary. The practice of cross-licensing is believed to be a solution to the problem of “royalty stacking.”⁹⁴ This phenomenon occurs when a downstream firm⁹⁵ produces a product involving a standard, which carries a large number of patents, each

⁹¹ Lemley, *supra* note 13, at 1959.

⁹² Wayland, *supra* note 4, at 9.

⁹³ U.S. DEP’T OF JUSTICE & FED. TRADE COMM’N, *supra* note 63, at 57; for an interesting description of the process, see Blind et al., *supra* note 83, at 74; HOVENKAMP ET. AL., *supra* note 15, at § 34.2.

⁹⁴ Geradin & Layne-Farrar, *supra* note 87, at 94; Mark A. Lemley & Carl Shapiro, *Patent Hold-up and Royalty Stacking*, 85 TEX. L. REV. 1991, 2014 (2007).

⁹⁵ This term simply refers to firms that manufacture goods, i.e. firms that are at the supply-end of the production process. CARLTON & PERLOFF, *supra* note 7, at 406.

owned by different patent holders, i.e. complementary patents. Then, the downstream firm is faced with a “stack” of royalties that it must pay in order to mitigate the risk of infringement litigation.⁹⁶ Consider the following:

Example 4: Firm A manufactures mobile phones. Its newest creation, the Bphone, incorporates many different technologies: a camera, Internet access and wireless data transfer, a touchscreen, sleek casing and so on. All of these technologies incorporate patents owned by various firms. To A, this stack of patents is composed of strict complements, i.e. it needs to acquire licenses for *all* of them in order to manufacture the Bphone without risking infringement suits. After its negotiation with all of the patent holders, A realizes that the cumulative royalty payments are so high that an economical production of the Bphone is no longer possible. What has happened?⁹⁷

Economists call the underlying problem here the “Cournot complements” effect. Each patent holder can disregard negative externalities⁹⁸ that the royalty rate it charges imposes on the cumulative royalty rate paid by the manufacturer.⁹⁹ According to the “Cournot complements” effect, this results in an increase of marginal cost, leading the downstream firm to increase prices and reduce output below a level that would have been set by a vertically integrated monopolist.¹⁰⁰ In effect, these circumstances describe the “individual hold-up problem”: the effects of hold-up are exacerbated the more patents the standard encumbers.¹⁰¹

⁹⁶ Lemley & Shapiro, *supra* note 94, at 1993.

⁹⁷ Damien Geradin, Anne Layne-Farrar & A. Jorge Padilla, *The Complements Problem Within Standard Setting: Assessing the Evidence on Royalty Stacking*, 14 B. U. J. SCI. & TECH. L. 144, 146 (2008).

⁹⁸ A negative “externality occurs when consumers or firms do not bear the full cost from the harm their actions do to others. Pollution is one of the most important examples of a negative externality.” CARLTON & PERLOFF, *supra* note 7, at 82.

⁹⁹ Geradin et al., *supra* note 97, at 145-46.

¹⁰⁰ Lemley & Shapiro, *supra* note 94 at 1993; Geradin et al., *supra* note 97, at 146.

¹⁰¹ Lemley & Shapiro, *supra* note 94, at 2011; Geradin et al. *supra* note 97, at 154.

Cross-licenses are a market-driven mechanism that can reduce the effects of royalty stacking.¹⁰² However, incentives to cross-license are only prevalent in cases in which various vertically integrated firms hold the patents encumbered by the standard. Such firms can obtain profits with downstream sales, rather than royalties.¹⁰³ Hence, it is rational to exchange licenses in order to avoid potential costs of infringement suits.

Yet, cross-licensing schemes can also have significant anticompetitive effects. The combined effect of patent hold-up and a strategy of market foreclosure by raising rivals' costs may have considerable impact on the downstream market.¹⁰⁴ Consider the case where a non-integrated downstream firm faces vertically integrated firms that have all entered into cross-licensing agreements. A single integrated firm can raise the costs of its downstream rivals by simply raising its royalty rates.¹⁰⁵ Once the firm can undercut its rival's end-product price, market foreclosure ensues. In other words "by restricting the supply available to rivals of a key input without similarly restricting the amount available to satisfy the purchaser's demand," the vertically integrated firm can attract consumers to switch to its product.¹⁰⁶ The result is an expansion of its downstream market share to the detriment of its competitors.¹⁰⁷

¹⁰² See Geradin et al., *supra* note 97, at 165-66; Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, 1 INNOVATION POL'Y & THE ECON. 119, 130 (2001). Another possibility by which to achieve this aim is creating patent pools. *Id.* at 134.

¹⁰³ See Geradin et al., *supra* note 97, at 166. This solution is of no surprise as it is well known from the problem of "vertical double marginalization," an effect that also plays into the royalty stacking problem displayed here. Double marginalization occurs when both upstream and downstream firms exert their market power resulting in a double markup. The remedy to the problem is often seen in vertical integration. See CARLTON & PERLOFF, *supra* note 7, at 419; Klaus M. Schmidt, *Licensing Complementary Patents and Vertical Integration* 5 (Ctr. for Econ. Studies & Ifo Inst. for Econ. Research, Working Paper, Nov. 2006), available at <http://ssrn.com/abstract=944169>.

¹⁰⁴ On the theory of this form of exclusionary conduct, see Rubinfeld & Maness, *supra* note 23, at 87; Thomas G. Krattenmaker & Steven C. Salopp, *Anticompetitive Exclusion: Raising Rivals' Costs To Achieve Power over Price*, 96 YALE L.J. 209 (1986).

¹⁰⁵ Schmidt, *supra* note 103, at 6.

¹⁰⁶ Krattenmaker & Salopp, *supra* note 104, at 230.

¹⁰⁷ Rubinfeld & Maness, *supra* note 23, at 87; Krattenmaker & Salopp, *supra* note 104, at 230.

The situation here is slightly different from the classic models of raising rivals' costs. These rely on either direct foreclosure by means of control of a bottleneck or a significant portion of market supply or by inducing vertical restraints through collusion on the upstream market.¹⁰⁸ In the case suggested here, the integrated firm's patent need not represent a major part of the standard technology for the anticompetitive effect to arise. This is because an injunction based solely on this patent would prohibit the production of the entire product.¹⁰⁹ Also, upstream collusion is unnecessary as each patent is in itself essential to the standard. Finally, specifying RAND terms is extremely difficult for the downstream firm when all vertically integrated firms have entered into cross-licensing agreements, essentially excluding any reasonable comparative benchmark.

3. *Analysis*

By giving licensees the option to demand cash-only licenses and by permitting cross-licenses, the agencies attempt to strike a balance between the pro-competitive and anti-competitive implications of cross-licenses. An SSO policy defining an express claim for cash-only licenses could help downstream firms that are not party to cross-licensing agreements.

However, considerable difficulties remain unresolved. A claim for a cash-only license in no way obviates the exercise of hold-up power by upstream firms. On the contrary, cross-license agreements can obscure the incremental contribution of the patent to the standard.¹¹⁰ Moreover, upstream firms could quickly agree to cross-license in order to inhibit royalty rate negotiations amongst direct competitors. In such a case, a downstream firm would have little to gain by claims for cash-only licenses as it could hardly prove that the fees demanded exceeded RAND requirements. Moreover, cash-only licenses do not prevent the use of raising rivals' costs strategies by vertically integrated firms in order to cut off downstream competitors from significant market shares. Thus, the implementation of this policy suggestion might result in vertical restraints potentially foreclosing non-integrated downstream firms from the market.

¹⁰⁸ Krattenmaker & Salopp, *supra* note 104, at 234-42.

¹⁰⁹ See Farrell et al., *supra* note 8, at 638.

¹¹⁰ See *id.*

C. Limitation of Exclusion through Injunctions

1. The Policy Suggestion

As was shown in Example 2, injunctions are a central tool of patent hold-up strategies. In line with this, Hesse and Wayland suggest SSOs “[p]lace some limitations on the right of the patent holder who has made a F/RAND licensing commitment who seeks to exclude a willing and able licensee from the market through an injunction.”¹¹¹

2. The Problem

In recent years a great deal has been said about the merits of and conditions for the issuance of injunctions following a finding of patent infringement by courts.¹¹² The policy suggestion points to the specific situation where a firm has committed to RAND terms in a standardization process. The literature on the relationship of hold-up and injunctions is too abundant to be treated in its entirety. Rather, this section will try to outline the general problem and focus on the two main conflicting positions. Importantly, different standards apply to federal courts and the International Trade Commission (ITC). The discussion is structured accordingly.

i. Injunctions by Federal Courts

Generally, there are two key remedies in patent litigation. First, a court can order an injunction to cease any further conduct in violation of the patent.¹¹³ This remedial measure is essential to upholding the exclusive nature of the patent.¹¹⁴ However, a court can also issue damages calculated by lost profits of the patentee or, in absence thereof, a “reasonable royalty.”¹¹⁵ The requirements

¹¹¹ Hesse, *supra* note 3, at 11.

¹¹² See Farrell et al., *supra* note 8, at 638; Cotter, *supra* note 2, at 1160; Lemley & Shapiro, *supra* note 94, at 1993; Carl Shapiro, *Injunctions, Hold-Up, and Patent Royalties*, 12 AM. L. & ECON. REV. 280 (2010); Lemley, *supra* note 90; Mark A. Lemley & Philip J. Weiser, *Should Property or Liability Rules Govern Information?*, 85 TEX. L. REV. 783 (2007); Einer Elhauge, *Do Patent Hold-up and Royalty Stacking Lead to Systematically Excessive Royalties?*, 4 J. COMP. L. & ECON. 535 (2008); Miller, *supra* note 25, at 366-67.

¹¹³ 35 U.S.C. § 283 (2005).

¹¹⁴ MUELLER, *supra* note 30, at 482.

¹¹⁵ 35 U.S.C. § 284 (2005).

for ordering injunctions have recently been reviewed. Prior to the Supreme Court's *eBay* decision, courts applied Federal Circuit precedent under which a finding of patent infringement triggered an automatic right to injunctive relief.¹¹⁶ The Supreme Court reversed and pointed to the wording of 35 U.S.C. § 283. It prompted the court below to apply "traditional equitable considerations".¹¹⁷ Instead of a *per se* rule for the granting of injunctive relief, a four-factor test is to be applied by the courts. A plaintiff must now demonstrate "(1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction."¹¹⁸ Yet, the impact of *eBay* seems to have been humble. In 2007 Iancu & Nichols argued that "the vast majority of cases continue the traditional pattern of granting permanent injunctions to patentees who have successfully proven infringement."¹¹⁹ Other studies have reached similar conclusions.¹²⁰ Nonetheless, in some cases, perhaps more than before, injunctions were denied and compulsory licenses granted.

As mentioned, injunctions are crucial to hold-up theory. Some argue that even the threat of an injunction can exacerbate the hold-up problem. Shapiro and Lemley claim that by threatening an injunction, the patent owner is likely to achieve a royalty fee that exceeds the marginal contribution of his patent to the

¹¹⁶ *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1247 (Fed. Cir. 1989) ("It is the general rule that an injunction will issue when infringement has been adjudged, absent a sound reason for denying it."). There have been exceptions to this rule only if beneficial to public health and welfare. MUELLER, *supra* note 30, at 483-84.

¹¹⁷ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 393-94 (2006); *see also* Cotter, *supra* note 2, at 1174.

¹¹⁸ *eBay*, 547 U.S. at 391.

¹¹⁹ Andrei Iancu & W. Joss Nichols, *Balancing the Four Factors in Permanent Injunction Decisions: A Review of Post-eBay Case Law*, 89 J. PAT. & TRADEMARK OFF. SOC'Y 395, 404 (2007).

¹²⁰ Rachel M. Janutis, *The Supreme Court's Unremarkable Decision in eBay Inc. v. MercExchange, L.L.C.*, 14 LEWIS & CLARK L. REV. 597, 604 (2010) (*citing* Douglas Ellis, John Jarosz, Michael Chapman & L. Scott Oliver, *The Economic Implications (and Uncertainties) of Obtaining Permanent Injunctive Relief After eBay v. MercExchange*, 17 FED. CIR. B.J. 437, 441-42 (2008)) (finding that injunctions were issued in 28 out of 36 cases); Benjamin Petersen, *Injunctive Relief in the Post-eBay World*, 23 BERKELEY TECH. L.J. 193, 196 (2008) (finding that injunctions were issued in 24 out of 34 cases).

total value of the final product.¹²¹ Moreover, to a standard, a single patent is typically only one of many contributions.¹²² Hence, the threat of an injunction allows the patent holder to exploit a value extrinsic to his own invention as leverage in royalty negotiations. The authors analyze the proportion of the negotiated rates attributable to hold-up by assuming a threshold royalty rate of $\theta\beta v$, i.e. the rate the patent holder would receive absent hold-up.¹²³ Here θ is the likelihood that a patent will be found valid. β is the fraction of the total gains a patent holder gets (generally taken to be 50%), v is the per unit value of the patented feature.¹²⁴ They find that for relatively strong patents, the threat of an injunction will lead to a negotiated royalty rate that is twice as high as the benchmark level.¹²⁵ Accordingly, if Courts apply *eBay*, award reasonable royalty rates, and take caution when issuing injunctions, “the hold-up component of negotiated patent royalties will be reduced or eliminated”.¹²⁶

Others question the premise of this conclusion. Elhauge claims that the threshold level under appreciates the return necessary to incentivize socially desirable upstream innovation, because it assumes a monopsonistic downstream market.¹²⁷ He argues that the benchmark rate deters any innovation the costs of which (I) are $I > (\theta\beta vX)$, where X is the number of units sold.¹²⁸ This leads to an unsatisfactory outcome. In a case where investment costs of an invention are less than its total value (θvX), it will only be pursued when the investment costs are lower “than β times the expected value of the investment.”¹²⁹ Elhauge claims that this result reflects the assumption that it is appropriate for the licensee to extract part of the value (β) of the upstream invention. By including β , the

¹²¹ *E.g.*, Lemley & Shapiro, *supra* note 24, at 1993; Farrell et al., *supra* note 8, at 638; *see* Shapiro, *supra* note 112, at 283; *see also* Lemley & Weiser, *supra* note 112, at 787 (claiming “injunctive relief . . . can increase the value of an entitlement and make a holdout strategy possible”).

¹²² Farrell et al., *supra* note 8, at 638.

¹²³ Shapiro, *supra* note 112, at 289.

¹²⁴ *Id.*; Lemley & Shapiro, *supra* note 94, at 1999; *see generally* Elhauge, *supra* note 112, at 538-42 (providing background to understand the implications of the findings).

¹²⁵ Shapiro, *supra* note 112, at 289, 296-97 (reflecting strong value of the patented feature, versus a lower rate for a relatively weak patent).

¹²⁶ *Id.* at 308.

¹²⁷ Elhauge, *supra* note 112, at 541.

¹²⁸ *Id.*

¹²⁹ *Id.*

model essentially allows for a monopsonist licensee to hold-up the licensor in reverse. Then, $\theta\beta v$ in fact does not assume the absence of hold-up.¹³⁰ He proposes a “natural” royalty rate of θv , that is the likelihood that the patent will be found valid multiplied by the per unit value of the patented feature.¹³¹

Notably, the disagreement here lies not in whether issuance of an injunction or threat thereof could lead to higher royalty rates as a matter of fact. Rather, what is disputed is how interests and efficiencies should be balanced.¹³² This is a matter of “economics of improvement.”¹³³ Hold-up theorists argue that the threat of hold-up ultimately leads to socially suboptimal investments by downstream firms and their consequent avoidance of “follow-up innovations.”¹³⁴ Their critics view injunctions as a means of the patent system to attribute to the patent holder the return necessary to incentivize innovation on the upstream market. In stressing equitable principles, the Supreme Court has assumed a more narrow interpretation of injunctive relief. This complicates matters for patent holders trying to demonstrate the inadequacy of damages.¹³⁵ Particularly, firms that have committed to RAND terms face significant difficulties in this respect, given that they have already committed to license.¹³⁶

ii. Exclusion Orders by the ITC

The ITC is not obligated to follow the *eBay* mandate.¹³⁷ It has jurisdiction over matters relating to Section 337 of the Tariff Act of 1930.¹³⁸ Plaintiffs can obtain exclusion orders if they can show that the downstream product infringes “a valid and enforceable United States patent”.¹³⁹ An exclusion order effectively shuts down all imports of that product. It is to be granted after the ITC has considered “the effect of such exclusion upon the public health and welfare,

¹³⁰ *Id.* at 542.

¹³¹ *Id.*

¹³² Cotter, *supra* note 2, at 1168.

¹³³ *Id.*

¹³⁴ *Id.* at 1164.

¹³⁵ Julie Brill, Comm’r Fed. Trade Comm’n, The Intersection of Patent Law and Competition Policy, Keynote Address at the University of Colorado Law School, 5 (Oct. 3, 2012), available at <http://www.ftc.gov/speeches/brill/121003patentip.pdf>.

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ 19 U.S.C. § 1337 (2006).

¹³⁹ 19 U.S.C. § 1337(a)(1)(B)(i), (d)(1).

competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumers”.¹⁴⁰ Unsurprisingly, plaintiffs have increasingly chosen the ITC as their venue of choice for patent infringement claims.¹⁴¹ A recent case reveals some of the difficulties of exclusion orders where the complainant had made RAND commitments.

The complainant, Motorola Mobility, Inc. (MMI), accused Microsoft Corp. of violating five Motorola patents in the design and production of Microsoft’s Xbox 360 video game system.¹⁴² Four of these patents were subject to RAND commitments MMI had made.¹⁴³ Microsoft sought to bar the exclusion order by means of equitable estoppel. First, it invoked a RAND defense. It claimed that by committing to license under RAND conditions, a patent holder had essentially forfeited the right of issuance of equitable remedies by the ITC.¹⁴⁴ In response to this, the ITC stated that Microsoft had not shown any precedent “in which a section 337 remedy was foreclosed due to the existence of RAND obligations.”¹⁴⁵ Therefore, the existence of a RAND commitment did not necessarily amount to a waiver of the right to seek equitable or exclusionary remedies.

In an attempt to establish the three elements of equitable estoppel under the *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.* standard,¹⁴⁶ Microsoft first accused MMI of misleading communication, because it had sent assurance to the SSO that it would license under RAND terms. Yet MMI could show that Microsoft had let two letters offering licenses go unanswered, and that MMI had

¹⁴⁰ 19 U.S.C. § 1337(d)(1).

¹⁴¹ Brill, *supra* note 135, at 5.

¹⁴² *Certain Gaming & Entm’t Consoles, Related Software, & Components Thereof*, Inv. No. 337-TA-752 at *2-4.

¹⁴³ *Id.* at *159.

¹⁴⁴ *Id.* at *162.

¹⁴⁵ *Id.* at *163.

¹⁴⁶ *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1041 (Fed. Cir. 1992) (“[1] The actor, who usually must have knowledge of the true facts, communicates something in a misleading way, either by words, conduct or silence. [2] The other relies upon that communication. [3] And the other would be harmed materially if the actor is later permitted to assert any claim inconsistent with his earlier conduct.”).

thereby fulfilled its RAND obligation to engage in “good-faith negotiations.”¹⁴⁷ Microsoft in turn contested that the offered rate of 2.25% on the end price was a sham, unreasonable offer.¹⁴⁸ The ITC conceded that the rate offered by MMI “could not possibly have been accepted by Microsoft” and was thereby misleading.¹⁴⁹ In arguing the second element, Microsoft pointedly stated that it relied on MMI’s commitment because both firms benefited from the standardization process, “which depends on reliable and enforceable RAND assurances.”¹⁵⁰ Interestingly, the ITC disagreed. Microsoft had not proven that it had in fact relied on any of MMI’s statements. Because of this, Microsoft was denied equitable estoppel of MMI’s exclusion order.

The example shows that the ITC is a potential venue for parties to engage in patent hold-up, even where district courts might not be. Yet, two further conclusions can be drawn. First, the case showcases conduct that could be called “reverse hold-up.” An alleged patent infringer could simply claim that the proposed rates are inconsistent with the RAND commitments and refuse to enter a licensing agreement. Suppose the patent holder has previously resigned the right to get an injunction, as the policy recommendation here suggests. Then it must essentially submit to compulsory damages based on a reasonable royalty as issued by a court. The patent infringer can effectively evade royalty negotiations thereby shifting the burden to the courts. Secondly, as the ITC states, the mere fact that a patent holder has committed itself to license on RAND terms in a SSO, does not *prima facie* create legally sufficient reliance of the SSO members to be eligible for equitable estoppel. This casts significant doubt on the effectiveness of *ex ante* RAND commitments.

3. Analysis

With this policy suggestion, the agencies attempt to strike a balance between the acknowledged rights of patent holders and the perceived menace hold-up exerts on the standardization process. After the *eBay* decision, this policy could more dominantly concern ITC cases. It reflects the view expressed by Microsoft as explained above: when a SSO member commits to license its

¹⁴⁷ *Certain Gaming & Entm’t Consoles, Related Software, & Components Thereof*, Inv. No. 337-TA-752, at *167.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.* at *168.

¹⁵⁰ *Id.* at *170.

patents under RAND, it is implicitly relinquishing its right to seek an injunction against those firms willing to agree on RAND terms.¹⁵¹ This also seems to be the view of the 9th Circuit. It recently expressed doubts whether RAND commitments are consistent with the issuance of injunctions.¹⁵² However, the wording of the suggestion leaves room for less radical solutions, i.e. that the patent holder retains a part of his right to get an injunction. For example, the patent holder could refrain from injunctions until the downstream firm can redesign non-infringing products.¹⁵³ Such a rule might be an option for SSOs intending to alleviate the threat of reverse hold-up and its repercussions on dynamic efficiencies on the upstream market. One of the policy suggestions not discussed here could further mitigate this issue: devising arbitration requirements directed to reach agreements on reasonable royalties.¹⁵⁴

In conclusion, the policy suggestion strikes an acceptable balance. Yet, limiting the right to receive injunctions can result in reverse hold-up. As stated above, certain policies might counteract such conduct.

CLOSING REMARKS

Hesse and Wayland have chosen to voice these policy suggestions at a time when the strategic use of patents has reached alarming significance, particularly in the smartphone market.¹⁵⁵ For instance, in June 2012 the FTC

¹⁵¹ Brill, *supra* note 135, at 5; *see* Wayland, *supra* note 4, at 4; Hesse, *supra* note 3, at 10; Jon Leibowitz, Chairman, Fed. Trade Comm'n, Remarks at Georgetown Law Global Antitrust Enforcement Symposium, 9 (Sept. 19, 2012), *available at* <http://www.ftc.gov/speeches/leibowitz/120919jdlgeorgetownspeech.pdf>; *cf.* Third Party United States Fed. Trade Comm'n Statement on the Public Interest at 5, Certain Wireless Commc'n Devices, Portable Music & Data Processing Devices, Computers & Components Thereof, Inv. No. 337-TA-745 (USITC June 6, 2012), *available at* <http://www.ftc.gov/os/2012/06/1206ftcwirelesscom.pdf>.

¹⁵² *See* Microsoft Corp. v. Motorola, Inc., 696 F.3d 872, 885 (9th Cir. 2012) (“injunctive relief against infringement is arguably a remedy inconsistent with the licensing commitment.”).

¹⁵³ *See* Shapiro, *supra* note 112, at 308 (proposing courts grant stays pending redesign).

¹⁵⁴ Hesse, *supra* note 3, at 10; Wayland, *supra* note 4, at 9.

¹⁵⁵ *See generally* Charles Duhigg & Steve Lohr, *The Patent, Used as a Sword*, N.Y. TIMES, Oct. 7, 2012, at A1 (explaining recent developments in patent litigation).

issued subpoenas in an investigation of Google's RAND licensing policies after the company's acquisition of Motorola.¹⁵⁶

Hopefully, this article has shown where these suggestions provide useful guidance and where they lack necessary precision. Particularly with respect to the disclosure requirement, it is unclear what exactly Hesse and Wayland had in mind. A disclosure rule in conjunction with a most restrictive licensing terms commitment is a balanced way of providing SSO members with adequate information prior to standard adoption. However, joint negotiation rules would interfere with the market's price system and therefore should not be pursued. Cross-licensing provisions can significantly reduce the Cournot complements effect, but the risk that vertically integrated firms will engage in strategies to raise rivals' costs must be taken into account. The same is true for the potential lack of available comparative benchmarks for reasonable royalty rates that downstream firms might face when demanding cash-only licenses. Finally, restricting the right to seek injunctive relief addresses the focal point of patent hold-up. However, the possibility of reverse hold-up needs to be duly addressed. This might be accomplished by temporarily barring injunctive relief until the infringing features are redesigned.

Clearly the suggestions offered by Wayland and Hesse do not provide definitive solutions to standard-essential hold-up. But it is unlikely that they intended to do so. As has been stated, the actions of the agencies and SSOs can only present part of the solution; eradicating standard-essential patent hold-up completely would inevitably require a legislative reform of patent law.¹⁵⁷

¹⁵⁶ Steve Lohr, *Widening Scrutiny of Google's Smartphone Patents*, N.Y. TIMES, Oct. 9, 2012, at B1.

¹⁵⁷ Shapiro, *supra* note 102, at 126.