Chicago-Kent Journal of Intellectual Property

Volume 22 | Issue 1 Article 1

1-17-2023

Frand Royalties: Rules V Standards?

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FRAND ROYALTIES: RULES V STANDARDS?

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ABSTRACT

Royalties for intellectual property (IP) are like taxes. Everyone agrees that some limits are necessary. However, no one agrees on the levels at which the limits should be set. One way to overcome disagreement consists in asking if a legal rule or standard should govern the limits of IP royalties. This paper discusses this issue in the context of Standard Essential Patents ("SEPs") governed by a commitment to license on Fair Reasonable and Non Discriminatory ("FRAND") terms. The paper finds that FRAND rules generally surpass standards, but only under specific conditions.

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Introduction

Fair, Reasonable and Non-Discriminatory ("FRAND") royalties for intellectual property ("IP") are like speed limits or taxes. They are one of these issues on which most lawyers agree in principle, but cannot agree in practice.

One way to minimize disagreement consists in considering the extent to which the law should specify in advance the contractual, governmental, or judicial determination of FRAND royalties. Two approaches exist. In a *rule*-based approach, the content of the law is set *ex ante*. For example, the law declares it unlawful to charge royalties in excess of the "*25% rule.*"[1] In a *standards* based approach, the content of the law is specified *ex post*. For example, in case after case, courts determine what makes royalties "*unreasonable*" or not. [2]

This paper considers this question in the particular context of the wireless communications industry. In past decades, the claim has been made that owners of patents essential to the implementation of interoperability standards (so called standard essential patents or SEPs)—like 5G—"holdup" technology implementers, in breach of their FRAND commitment.[3] In the US, courts have interpreted FRAND as an abstract *standard* of reasonableness, and proceeded on that basis to set royalty levels.[4] In the European Union ("EU"), the Court of Justice of the EU ("CJEU") has adopted a structured *rule* which specifies a code of conduct that FRAND-pledged SEP owners and implementers should follow in licensing negotiation.[5] A few years ago, one of the world's largest Standard Setting Organizations ("SSO") has attempted to reduce the vagueness of FRAND by imposing a *rule* for the determination of reasonable royalty rates.[6]

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1. Which states that royalty represents one fourth of the profits made by the product that embodies the patented technology. Robert Goldscheider, John Jarosz and Carla Mulhern, *Use Of The 25 Per Cent Rule In Valuing IP*, LES NOUVELLES, 123 (Dec. 2002); Richard Razgaitis, *Pricing the Intellectual Property of Early-Stage Technologies: A Primer of Basic Valuation Tools and Considerations*, *in* A. Krattiger et al. (eds.) INTELLECTUAL PROPERTY MANAGEMENT IN HEALTH AND AGRICULTURAL INNOVATION: A HANDBOOK OF BEST PRACTICES 813, 833 (Krattinger et al. eds., 2007); *see* also, KPMG International, Profitability and royalty rates across industries: Some preliminary evidence (2012).

2. Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557, 557, 560, 562 (1992).

3. *See* Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, 1 INNOVATION POL'Y AND THE ECON., 119, 124-126 (2000). *See generally*, Mark Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV., 1991 (2007).; Carl Shapiro, *Injunctions, Hold-Up, and Patent Royalties*, AM. L. & ECON. REV., 280 (2010).

4. *See* Microsoft Corp. v. Motorola, Inc., 795 F.3d 1024 (9th Cir. 2015); In re Innovatio IP Ventures, LLC Patent Litigation, 921 921 F.Supp.2d 903 (N.D. Ill. 2013); Apple, Inc. v. Motorola, Inc. No. 1:11–cv–08540, 2012 WL 1959560 (N.D. Ill. May 22, 2012) affirmed in part: Apple Inc. v. Motorola, Inc., 757 F.3d 1286 (Fed. Cir. 2014); Commonwealth Sci. & Indus. Rsch. Org. v. Cisco Sys., Inc., No. 6:11-cv-343, 2014 WL 3805817 (E.D. Tex. Jul. 23, 2014) affirmed in part: Commonwealth Sci. & Indus. Research Organization v. Cisco Sys., 809 F.3d 1295 (Fed. Cir. 2015); Ericsson v. D-Link Sys., 773 F.3d 1201 (Fed. Cir. 2014).

5. *See e.g.* Case C-170/13, Huawei v. ZTE, ECLI:EU:C:2015:477, ¶¶ 15 (Jul. 16, 2015).

6. *See IEEE-SA Standards Board Bylaws*, SASB BYLAWS, § 6, cl. 6 (Approved and effective Q1 2015)., https://www.bipc.com/assets/PDFs/Insights/Article-Antitrust_Intellectual_Property_Litigation-IEEE_Approves_Updated_Patent_Policy_for_Standard_Essential_Patents-IEEE_Patent_Policy-20150209.pdf [https://perma.cc/Q9BK-LQWK]. The IEEE-SA has members from more than 160 countries, including corporations, government agencies or academic institutions.

Most of these approaches have emerged without comparing the costs and benefits of rules and standards. Scholarly debates have focused on the *meaning* of FRAND.[7] Less consideration has been given to the question of *when* FRAND should be given content: *ex ante* by a rulemaking body or *ex post* by an enforcement authority.[8] In the limited scholarship available on the issue, proposals go in both directions. Shapiro, for example, early supported a minimalist *ex post* standards approach,[9] only to later endorse a maximalist *ex ante* rules approach.[10]

As literary solutions keep hitting walls, this article compares the cost differentials of specifying the content of a FRAND commitment as a rule or standard.[11] The article shows the existence of significant trade-offs between the extent to which a given aspect of a legal command should be resolved in advance or left to an enforcement authority to consider.[12] More specifically, this article finds that FRAND rules may be more optimal than FRAND standards. The superiority of rules over standards is, however, not absolute. It is essentially a function of empirical issues like the frequency of FRAND litigation.[13] In addition, the superiority of FRAND rules holds when the *agent* that specifies the rule is a judicial institution with precedent setting authority, but is less compelling when the agent is a private ordering institution. Last, FRAND rules are heterogeneous. The superiority of FRAND rules over standards does not apply across all types of rules.

This paper proceeds as follows. Part I describes the theory of rules versus standards. Part II reviews examples of FRAND rules and standards. Part III examines the implications of the theory in a FRAND context, shows that the selection of a rule or standard is not a tradeoffs-free choice, and shows empirical variables not addressed in the theory matter. Last, Part IV finds that if FRAND rules generally surpass standards, this property only holds under specific conditions.

7. *See e.g.* Gregory Sidak, *The meaning of FRAND, Part I: Royalties*, 9(4) J. COMPETITION L. & ECON., 931 (2013); Gregory Sidak, *The Meaning of FRAND, Part II: Injunctions*, 11(1) J. COMPETITION L. & ECON., 201 (2015); Anne Laynne-Farra, Jorge A Padilla, Richard Schmalensee, *Pricing Patents for Licensing in Standard-Setting Organizations: Making Sense of FRAND Commitments*, 74(3) ANTITRUST L. J., 671 (2007).

8. *See e.g.* Norman Siebrasse, Thomas Cotter, *Judicially Determined FRAND Royalties*, Minnesota Legal Studies Research Paper No. 16-01 (2016). Where the authors focus on the 'principles and methodologies courts have used for calculating royalties' but do not discuss the role of courts in this *ex post* determination.

9. *See* Shapiro (2010) *supra* note 3, at 302 (supporting that courts use "the discretion granted to them under eBay to selectively limit the use of injunctions in this way.").

10. *See* Carl Shapiro & Mark Lemley, *The Role of Antitrust in Preventing Patent Holdup,* U. Pa. L. Rev. 2020 (2019) at 2039, 2044, 2046.

11. *See* JRC Report, Justus Baronet al., *Making the rules, The Governance of Standard Development Organizations and their Policies on Intellectual Property Rights*, JRC SCIENCE FOR POLICY REPORT (2019) EUR 29655 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-00023-5, doi:10.2760/48536, JRC115004; Panagiotis Delimatsis, Olia Kanevskaia & Zuno Verghese, Strategic Behavior in Standards Development Organizations in Times of Crisis, 29 TEX. INTELL. PROP. L.J. 127 (2021); Bowman Heiden, Justus Baron, *A Policy Governance Framework for SEP Licensing: Assessing private versus public market interventions* (June 23, 2021). Available at SSRN: https://ssrn.com/abstract=3872493 or http://dx.doi.org/10.2139/ssrn.3872493 [https://perma.cc/6343-UGJ4].

12. *See* Kaplow, *supra* note 2, at 561-66.

13. *Id*.

Several important caveats are in order. First, the article assumes that patent holdup is a public policy concern.[14] Patent holdup pretends that SEP owner extract rents from implementers by setting royalties at monopoly levels. There is no admission here of the validity of the patent holdup theory.[15] Second, the article considers FRAND as the legal construct used to regulate the enforceability of SEPs,[16] but does not take a stance on the underlying doctrine mobilized towards that goal (estoppel, third party beneficiary[17], implicit waiver,[18] implied license,[19] reliance,[20] antitrust harm[21], etc.). [22] Third, our paper does not discuss the issue of the optimal level of FRAND royalties.[23] These caveats formulated, this article

14. For an empirical analysis of patent hold-up, *see* Love et all, Do Standard-Essential Patent Owners Behave Opportunistically? Evidence from U.S. District Court Dockets (Nov. 8, 2020) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3727085 [https://perma.cc/D8NF-UGT6].

15. The theory is challenged. *See e.g.* Galetovic et all, *An Empirical Examination of Patent Holdup*, 11 J. COMPETITION L. & ECON. 549, 572 (2015) ("We cannot reject the hypothesis of no SEP holdup"); Anne Layne-Farrar, Patent Holdup and Royalty Stacking Theory and Evidence: Where do we stand after 15 Years of History? (2014) (unpublished note to Org. for Econ. Coop. Competition Comm.) (available at http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WD(2014)84&docLanguage=En) [https://perma.cc/4CPJ-7F9L]; David Teece, Opening Remarks at The First Annual IP Management Conference: "Intellectual Property Issues in a Global Context: Management & Policy Concerns" (Jul. 14, 2015) [https://perma.cc/FLY6-49E5].

16. For an expression of this view, *see* Jorge Contreras, *Patent Pledges*, 47 ARIZ. ST. L. J. 543, 547 (2015).

17. In the US, *see* Huawei Techs. v. T-Mobile, No. 2:16-CV-00715-JRG-RSP, 2017 WL 957720, at *1 (E.D. Tex. Feb. 22, 2017). In Europe, *see* TCT Mobile Europe, et al. v. Koninklijke Philips NV, 19/02085, 352J-W-B7DCPCIX (Civil Court of Paris Feb. 6, 2020).

18. *See* Mark Lemley, Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L. J. 1135, 1144 (2013).

19. *See* Mark Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889, 1923 (2002).

20. *See* Jorge Contreras, *Market Reliance Theory for FRAND Commitments and Other Patent Pledges*, 2015 UTAH L. REV. 479 (2015).

21. *See* Herbert Hovenkamp *FRAND and Antitrust*, 105 CORNELL L. REV. 1683 (2020); Wi-LAN Inc. v. LG Elec., 382 F. Supp. 3d 1012, 1023 (S.D. Cal. 2019).

22. Similarly, we do not discuss the alternative possibility that FRAND pledges might constitute social institutions designed to promote impersonal trust in the presence of collective agency problems. *See generally* Susan Shapiro, *The Social Control of Impersonal Trust*, 93 AM. J. SOCIO. 632 (1987).

23. There is an abundant literature on the issue of the meaning of FRAND, and especially on how to calculate the FRAND royalty level. *See e.g.* J. Gregory Sidak, *The Meaning of FRAND, Part I: Royalties*, 9 J. COMPETITION L. & ECON. 931 (2013); J. Gregory Sidak, *The Meaning of FRAND, Part II: Injunctions*, 11 J. COMPETITION L. & ECON. 201 (2015); Damien Geradin & Miguel Rato, *Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent Hold-Up, Royalty-Stacking and the Meaning of FRAND*, 3 EUR. COMPETITION J. 101 (2007); Daniel Swanson & William Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1 (2005); Norman Siebrasse & Thomas Cotter, *The Value of the Standard*, 101 MINN. L. REV. 1159 (2017); Layne-Farrar et al., *Pricing Patents for Licensing in Standard-Setting Organizations: Making Sense of FRAND Commitments*, 74 ANTITRUST L.J. 671 (2007); Farrell et al., *Standard Setting, Patents and Hold-Up*, 74 ANTITRUST L.J. 603 (2007); Mario Mariniello, *Fair, Reasonable and Non-Discriminatory (FRAND) terms: a challenge for competition authorities*, 7 J. COMPETITION L. & ECON. 523 (2011); Doug Lichtman, *Understanding the RAND Commitment*, 47 HOUS. L. REV. 1023 (2010); Dennis Carlton & Allan Shampine, *An Economic Interpretation of FRAND*, 9 J. COMPETITION L. & ECON. 531 (2013); Thomas Cotter, *Comparative Law and Economics of Standard-essential Patents and FRAND Royalties*, 22 TEX. INTELL. PROP. L.J. 311 (2014); David Salant, *Formulas for Fair, Reasonable and Non-Discriminatory Royalty Determination*, 7 INT'L J. INFO. TECH. STANDARDIZATION RSCH. 67 (2007).

ambitions to provide actionable insights for government bodies, antitrust agencies, SSOs and judicial organs across the globe.[24]

I. RULES V STANDARDS: THE MODEL

A. Definition

The law is a set of commands on conduct.[25] Legal commands come in the form of rules or standards. When a standard is chosen, the legal command denotes "*a general criterion of social choice.*"[26] When a rule is chosen, the legal command is more specific.[27]

A hypothetical example helps. Income tax legislation can declare: wealthy taxpayers are subject to an added 3-percent income tax (option 1); taxpayers with a yearly income in excess of USD 1 million are subject to an added 3-percent income tax (option 2);[28] taxpayers owning private property with more than [X] doors, [Y] windows and [Z] floors are subject to an added 3-percent income tax (option 3).[29]

Option 1 is a standard. The legal command uses an abstract concept of *wealth*. Options 2 and 3 are rules. The legal command uses more specified criteria to trigger the tax obligation.

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24. In 2014, the European Commission proposed in a note to the Members States to engage in discussions regarding a durable solution on FRAND licencing in standards and invited the Member States to consider a text on a proposal on injunctive relief on SEP to be elaborated together with US regulators. European Commission, *Competition policy brief, Standard-essential patents,* Issue 8, June 2014. Available at https://ec.europa.eu/competition/publications/cpb/2014/008_en.pdf. In 2014, the European Commission published a study on patents and standards and, in early 2015, held a public consultation, which sought to collect views of interested parties to provide their views on the current and prospective performance of the framework governing the inclusion of patented technologies in standards, and the licensing process for those technologies. Study and public consultation available at: https://single-market-economy.ec.europa.eu/industry/strategy/intellectual-property/patent-protection-eu/standard-essential-patents_en [https://perma.cc/RLP2-HBR8]. In April 2016, the European Commission published a Communication on "ICT Standardization Priorities for the Digital Single Market", which invites to "*work in collaboration with stakeholders including ESOs, EPO, industry and research, on the identification, by 2017, of possible measures to (i) improve accessibility and reliability of information on patent scope, including measures to increase the transparency and quality of standard essential patent declarations as well as (ii) to clarify core elements of an equitable, effective and enforceable licensing methodology around FRAND principles and (iii) to facilitate the efficient and balanced settlement of disputes.*" *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions*. *Standardisation Priorities for the Digital Single Market*. COM (2016) 176 final (April 19, 2016). [COM/2016/0176].

25. *See* Ronald Dworkin, *The Model of Rules*, 35 UNIV. CHI. L. REV. 14, 17 (1967).

26. *See* Isaac Ehrlich & Richard A. Posner, *An Economic Analysis of Legal Rulemaking*, 3 J. LEGAL STUD. 257, 258 (1974); Vincy Fon & Francesco Parisi, *On the Optimal Specificity of Legal Rules*, 3 J. INST. ECON. 147, 159 (2007).

27. *See* Duncan Kennedy, *Form and Substance in Private Law Adjudication*, 89 HARV. L. REV. 1685, 1687-1713 (1976) (talking of a "formal mode [that] favors the use of clearly defined, highly administrable, general rules"); *see also* Daniel A. Crane, *Rules Versus Standards in Antitrust Adjudication*, 64 WASH. & LEE L. REV. 49, 55 (2007).

28. Matthew Dietrich, *Michael Madigan's Resurrected Millionaires Tax Faces Opposition*, THE HUFFINGTON POST (Feb. 27, 2015), http://www.huffingtonpost.com/matthew-dietrich/michael-madigans-resurrec_b_6763570.html [https://perma.cc/KZQ7-4JPW].

29. This is inspired from the sumptuary laws in vigor in the Roman empire. John S. Reid, *The so-called 'Lex lulia Municipalis'*, 5 J. ROMAN STUD. 207, 217 (1915).

The rules and standards dichotomy is old.[30] Despite its age, however, the literature remains scant. Erhlich and Posner consider that a rule removes some (or all) circumstances that would be relevant for decision from the adjudicator's discretion.[31] The difference between a rule and a standard is then "*a matter of degree – the degree of precision.*"[32] The more precise the legal command, the less discretion to the adjudicator, and vice versa. Diver also frames the dichotomy in terms of precision.[33]

The problem, however, is that depending on the perspective, both rules and standards can be precise or not. A standard that bans driving at "*unreasonable*" speed is not necessarily less precise than a rule that forbids driving in excess of 55mph per hour. True, the latter rule is more precise from a perspective of application. But it is less precise from a perspective of prevention of dangerous speeding because it ignores important factors like car type, road conditions or weather. Moreover, rules also rely on standards in their formulation.

Kaplow has proposed a refined reading of the dichotomy. In Kaplow's view, the "*only distinction between rules and standards is the extent to which efforts to give content to the law are undertaken before or after individuals act*."[34] Other properties, like "*precision*", are misleading. Discussing the degree of detail in legal commands often leads to the critique that rules are either over or under inclusive, due to their inherently wooden nature. To go back to the hypothetical example, option (2) exonerates the USD 999,999.99 income earner. This cannot be considered a precise outcome from the standpoint of mitigating economic inequality by taxation. Besides, the level of detail "*actually employed by the adjudicator*" may be lower than presupposed, because instead of considering dozens of factors to gauge "*wealth*" under option (1), a decision maker may rely on a couple of handy, simple "*proxies*" like observed spending behavior, social profile, etc.[35]

The difference then hinges on whether the content of the law is determined exhaustively or not. A rule is a specified legal command that leaves only some legal issues for *ex post* determination. A standard is an unspecified legal command that leaves more legal issues for *ex post* determination. Both rules and standards can be combined. For example, a rule may say that two standards apply, for example efficiency or equality.[36] And rules and standards can be hybrid.[37] For instance, a fourth option in the hypothetical example could be: "*Tax on inherited wealth: a standard inheritance tax rate of 50–60 percent is instituted, which can raise to higher levels for top bequests, in line with historical experience.*"[38] In this variant,

30. For an early treatment, *see* Willis L. M. Reese, *Choice of Law Rules or Approach*, 57 CORNELL L. REV. 315, 316 (1972). Already in 1972, the issue was disputed, though not in the exact same terms. For instance, Reese distinguishes rules and approaches. A rule is defined as a "a formula which once applied will lead the court to a conclusion." *Id.* An approach is defined as a "system which does no more than state what factor or factors should be considered in arriving at a conclusion." *Id.*

31. *See* Ehrlich & Posner *supra* note 26, at 258.

32. *Id*. at 258.

33. *See* Colin S. Diver, *The Optimal Precision of Administrative Rules*, 93 YALE L.J. 65, 66 (1983).

34. *See* Kaplow, *supra* note 2, at 560 (emphasis in original).

35. *Id*. at 565-66 (emphasis in original).

36. *Id.* at 561 (footnote 6).

37. *See* Ehrlich & Posner *supra* note 26, at 260.

38. Thomas Piketty, *About Capital in the Twenty-first Century*, 105 AM. ECON. REV. 48, 51 (2015).

there is both a rule – taxation on all inherited wealth by 50 to 60% – and a standard that governs the adjustment for "*top*" bequests and historical "*experience.*"

B. Implications

More consensus surrounds the factors that govern the optimal selection of a rule or standard. The issue can be framed in terms of the respective costs and benefits of both options.[39] The literature predominantly discusses costs comparisons, and less the benefits of rules and standards. This is plausibly because the adoption of rules and standards yields no tangible revenue that can then be used to compute a benefit.

Kaplow identifies three types of costs: promulgation, advice and enforcement costs.[40] Promulgation costs are those expended to specify the content of the law *ex ante*. Because some investigation and deliberation is necessary, rules are more costly than standards to promulgate.[41] Advice costs are those incurred by individuals to learn the content of the law. Those costs, in contrast, tend to be lower with rules than standards.[42] Enforcement costs are those related to the application of the law in the individual case. They tend to be greater with standards, because in case after case, the decision maker must specify the content of the standard.[43]

The overall comparison between rules and standards depends on the cost differentials of promulgation and enforcement. Kaplow finds that the "*greater the frequency with which a legal command is applied, the more desirable rules tend to be relative to standards.*"[44] This is because the average total cost ("ATC") of legal output decreases with frequency of application. With a rule, a cost of specification is borne once at promulgation stage, which can then be spread on each unit of adjudication at enforcement stage.[45] Hence, in a rule setting, the cost of promulgation is fixed. With a standard, an incomplete cost of specification is borne at promulgation stage. The fixed cost of promulgation of a rule will thus tend to be higher than that of a standard. By contrast, the variable costs of enforcement of a standard will tend to be higher than with a rule. A standard imposes costs of specification at enforcement stage. Of course, all this depends on cost levels encountered in real life, and one can easily conceive of empirical circumstances in which the fixed cost of promulgation of a rule will be lower than a standard.

The presence of economies of scale in specifying the law means that at a given frequency of enforcement proceedings, rules become less costly than standards. In short, rules scale better than standards. Ehrlich and Posner come to a

39. *See* Ehrlich & Posner, *supra* note 26, at 257.

40. *See also* Ehrlich & Posner, *supra* note 26, at 270; Diver, *supra* note 33, at 91, 95 which also envision the issue in costs terms and identify the same cost components. The main difference is that they discuss the over and under inclusiveness of rules, which Kaplow has evacuated, through the notion that standards can too be over and under inclusive.

41. *See* Kaplow, *supra* note 2, at 569.

42. Provided the individuals subject to the law decide to acquire information about it.

43. *See* Kaplow, *supra* note 2, at 571.

44. *Id.* at 577 (emphasis added).

45. *Id.* For an exposition, *see also* Fon & Parisi, *supra* note 26, at 150.

similar finding, noting that rules should be preferred in areas of the law with homogeneous conduct.[46]

Advice costs can be neglected. Individuals might acquire information on the content of the law regardless of their specification as rules or standards. When this is the case, the cost differential of cheaper advice under rules tilts the balance in favor of rules. When this is not the case, there is every reason to believe that individuals will prioritize acquiring information on rules, as advice will be cheaper and compliance easier.[47]

If cost analysis suggests that rules dominate standards when behavior is frequent, there are some qualifications. Standards may be favored when adjudication incrementally creates a precedent. In this variant, a "*rule*" is promulgated whose ATC might be lower than a formal rule.[48] The costs of promulgation of a rule by precedent are essentially all those incurred due to legal uncertainty in the interim. Besides, Ehrlich and Posner stress that there should be a consideration of the costs and benefits of legislative rules, judge-made rules and private rules.

Importantly, the metric of optimality in the rules versus standard literature is not a reduction of litigation. The metric of optimality is a reduction in the costs (ATC) of litigation. Lawyers who support further specification of the FRAND commitment often want to reduce litigation. The amount of litigation is not a relevant benchmark of choice between a rule and standard.

Much applied scholarship has relied on insights from the rules or standard literature. The dichotomy has been used in particular in commercial law,[49] family law,[50] labor law,[51] product liability law,[52] sentencing law,[53] judicial review,[54] law of payments,[55] and tax law.[56] Though not all studies follow the frequency conjecture mentioned above, most discuss the optimality of the mix of rules and standards achieved within their disciplines.

46. *See* Ehrlich & Posner, *supra* note 26, at 272.

47. Eric Posner is right to add that "the choice between rule and standard will depend on the fractions of the population that will invest in each level of information, and on the relative gains enjoyed by each population under each regime." Eric A. Posner, *Standards, Rules, and Social Norms*, 21 HARV. J.L. & PUB. POL'Y 101, 103 (1997).

48. *See* Kaplow, *supra* note 2, at 578.

49. *See* Douglas G. Baird, Robert Weisberg, *Rules, Standards, and the Battle of the Forms: A Reassessment of § 2-207*, 68 VA. L. REV. 1217 (1982).

50. *See* Carl E. Schneider, Discretion, rules, and law: Child custody and the UMDA's best-interest standard, 89 MICH. L. REV. 2215 (1991).

51. *See* David Cabrelli, *Rules and Standards in the Workplace: A Perspective from the Field of Labour Law*, 31 LEGAL STUDIES 21 (2011).

52. *See* Aaron Twerski, *Seizing the Middle Ground Between Rules and Standards in Design Defect Litigation: Advancing Directed Verdict Practice in the Law of Tort*, 57 N.Y.U. L. REV. 521, (1982).

53. *See* Russell D. Covey, *Rules, Standards, Sentencing, and the Nature of Law*, 104 CALIF. L. REV. 449 (2016).

54. *See* Thomas W. Merrill, *The* Mead *Doctrine: Rules and Standards, Meta-Rules and Meta-Standards*, 54 COLUM. L. REV. 807 (2002).

55. *See* Clayton P. Gillette, *Rules, Standards, and Precautions in Payment Systems,* 82 VA. L. REV. 181 (1996).

56. *See* David A. Weisbach, *Formalism in the Tax Law*, 66 UNIV. CHI. L. REV. 860 (1999).

TABLE 1: Cost differentials of Rules v Standards

	Promulgation cost	Enforcement cost	Advice cost	ATC
Rule	High	Low	Low	Low if frequent conduct
Standard	Low	High	High	Low if infrequent conduct

II. FRAND RULES AND STANDARDS: ILLUSTRATIONS

Specifications of FRAND commitments can be classified on a rules or standard spectrum. At one end, a FRAND standard asks decision makers to determine royalties *ex post* by general reference to "*fairness*", "*reasonableness*" and "*non-discrimination."* At the other end, a FRAND rule *ex ante* specifies the content of lawful royalties.

The following section gives an overview of FRAND rules, standards, and hybrid approaches (A), and derives some preliminary conclusions (B). Given that the rules or standard dichotomy is not clear-cut, the analysis involves some arbitrary classification.

A. Overview

1. Standards

Many US courts have endorsed a standards approach to FRAND.[57] Three cases provide illustrations. In *Broadcom v Qualcomm*, the Court of Appeals for the Third Circuit considered allegations that a SEP owner had committed to license on FRAND terms, and later breached those commitments by demanding non-FRAND royalties.[58] In view of the facts, the Court held that Qualcomm had breached its FRAND commitment, and that this constituted actionable anticompetitive conduct. The Court never specified what, in the SEP owner royalty demands, was un-FRAND.[59]

57. Not all Federal Circuit cases seem to follow so clearly this approach. In *CSIRO*, the Federal Circuit seemed to consider that patent damages ought to be governed by a standard, not a rule. *See* Commonwealth Sci. & Indus. Rsch. Org. v. Cisco Sys., Inc., 809 F.3d 1295, 1301 (Fed. Cir. 2015) (holding "there may be more than one reliable method for estimating a reasonable royalty."). Yet, the case does not shed much light on FRAND, because the Federal Circuit refused to attach any importance to that issue, and instead found the standardization context to be more relevant.

58. Broadcom Corp. v. Qualcomm, Inc., 501 F.3d 297, 304 (3d Cir. 2007).

59. *Id.* at 314.

In *Ericsson v D-Link*, a plaintiff was suing D-Link for patent damages.[60] The Court confirmed the infringement, and then entertained a discussion on the appropriate method to compute (F)RAND damages. At lower level, the District Court had instructed the jury on the basis of the traditional rules based approach for the calculation of patent damages set forth in *Georgia Pacific*.[61] The Third Circuit vacated the District Court judgment, holding that "'(F)RAND terms' vary from case to case."[62] It then rejected the rules approach in unequivocal language: "[w]e believe it unwise to create a new set of *Georgia-Pacific*-like factors for all cases involving RAND-encumbered patents. Although we recognize the desire for *bright lines rules* and the need for district courts to start somewhere, courts must consider the facts of record when instructing the jury and should avoid rote reference to particular damages formula."[63]

In *Apple Inc. v Motorola Inc.*, the Federal Circuit rejected an invitation to create a special rule for FRAND cases.[64] The Court expressly upheld the flexible remedial standard set forth in *eBay*: "While Motorola's FRAND commitments are certainly criteria relevant to its entitlement to an injunction, *we see no reason to create, as some amici urge, a separate rule or analytical framework for addressing injunctions for FRAND-committed patents*. The framework laid out by the Supreme Court in eBay, as interpreted by subsequent decisions of this court, provides ample strength and flexibility for addressing the unique aspects of FRAND."[65]

Other US courts have adopted the same view. In *Microsoft Corp. v. Motorola, Inc.,* the Ninth Circuit rejected the applicant claim that the District Court had paid no heed to factor 15 of the *Georgia Pacific* list.[66] With copious reference to *Ericsson v D-Link*, the Court closed its opinion in stressing the need for "flexibility in determining a royalty rate for a RAND-encumbered patent."[67] In *Ericsson v D-Link*, lower courts joined a "standards" reading of (F)RAND, insisting on the necessary *ex post* determination in enforcement proceedings. Judge Davis of the Eastern District Court of Texas wrote: "The paradox of RAND licensing is that it requires a patent holder to offer licenses on reasonable terms, but it offers no guidance over what is reasonable. Thus, RAND creates an obligation that must be followed, but it provides no guidance on how to follow that obligation. This creates a situation ripe for judicial resolution."[68]

This view of FRAND as a standard requiring *post hoc* specification is also shared in some branches of the US Government. An administrative law judge with the International Trade Commission ("ITC") has for example stated that: "*When the parties sign the letters agreeing to license their IPR at ETSI, they not only do not*

60. Ericsson, Inc. v. D-Link Sys., 773 F.3d 1201, 1213 (Fed. Cir. 2014).

61. Ga.-Pacific Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120-21 (S.D.N.Y. 1970).

62. Ericsson v. D-Link Sys., 773 F.3d 1201, 1231 (Fed. Cir. 2014).

63. *Id.* at 1232 (emphasis added).

64. Apple Inc. v. Motorola Inc., 757 F.3d 1286, 1331-32 (Fed. Cir. 2014).

65. *Id*. (emphasis added); *see also Id.* at 1331 ("To the extent that the district court applied a *per se* rule that injunctions are unavailable for SEPs, it erred") (emphasis in original).

66. Microsoft Corp. v. Motorola, Inc., 795 F.3d 1024, 1041 (9th Cir. 2015). The opinion opens with a reminder that (F)RAND terms are subject to the common-law obligations of good faith and fair dealing.

67. *Id*. at 1042.

68. Ericsson, Inc. v. D-Link Sys., Inc., No. 6:10-CV-473 (E.D. Tex. Aug. 6, 2013) (internal quotations omitted).

know what a FRAND rate is, they cannot know. Absence agreement, there is no such rate, nor can it exist absent an agreement until a court determines the rate for the parties. To prove a violation of FRAND, as it is defined in ETSI, there must be voluntary agreement or a trial in a district court, and only after the court determines a rate, could we look retrospectively at the negotiations and determine if the offers were within the FRAND range (FRAND contracts provide for a range of acceptable results. While some offers could be clearly outside the range, there is no mechanism for finding the range prior to litigation)."[69]

2. Rules

In 2015, one of the world's largest Standard Setting Organization ("SSO") known as IEEE-SA adopted a rules based approach of FRAND.[70] On invitation of the US DoJ,[71] the IEEE-SA decided to give "*greater clarity of meaning on 'reasonable' rates*",[72] and to reduce the "*inherent vagueness*" of FRAND pledges given by SEPs owners.[73] The bylaws of IEEE-SA were amended to provide a definition of "*reasonable rate*" applicable to all patent holders that make an early FRAND commitment in an accepted Letter of Assurance ("LoA"). Reasonable means "*appropriate compensation to the patent holder for the practice of an essential patent claim excluding the value, if any, resulting from the inclusion of that Essential Patent Claim's technology in the IEEE standard.*"[74] In other words, an

69. *See* Notice Regarding Initial Determination on Violation of Section 337 and Recommended Determination on Remedy and Bonding, Inv. No. 337-TA-868, USITC Pub. 4853, 42 (Mar. 5, 2014). *See also* Notice of Commission Determination Finding No Violation of Section 337; Termination of Investigation, Inv. No. 337-TA-613, USITC Pub. 4145 (Aug. 28, 2015).

70. IEEE-SA, IEEE-SA Patent Policy: Introduction and Guide to the IEEE-SA Patent Policy (Mar. 2016) https://development.standards.ieee.org/myproject/Public/mytools/mob/patut.pdf.

71. *See* Renata Hesse, Six Small Proposals for SSOs before Lunch, Remarks as Prepared for the ITU-T Patent Roundtable, Geneva, Switzerland (October 10, 2012) https://www.justice.gov/atr/file/518951/download.

72. *See* Letter from Michael A. Lindsay, Dorsey & Whitney LLP, to The Hon. William J. Baer, Assistant Att'y Gen., U.S. Dep't of Justice (Sept. 30, 2014) 10, https://www.justice.gov/sites/default/files/atr/legacy/2015/02/17/311483.pdf [https://perma.cc/D989-CYS7]. In addition to providing guidance on the meaning of "*reasonable rate*", the updated patent policy (i) clarifies that compliant implementations cover both end-use products and components or sub-assemblies, and that FRAND commitment indistinctly apply to all; (ii) restricts the availability of injunction or exclusion orders to patent holders to circumstances where the implementer fails to comply with the outcome of third party judicial proceedings over FRAND setting disputes, invalidity, enforceability, essentiality and infringement, and damages; and (iii) confirms that SEP holders can seek to benefit from grant backs on the licensee's SEPs and non SEPs.

73. *Id*. at 10. *See also*, K. Karachalios, "If it works (for me), why fix it? – Status Quo versus Reforms at the Intersection between the Patent System and Standardization", Keynote Speech at IEEE SIIT 2015 (October 2015) (describing the problem with the FRAND commitment concept: "to be clear the problem is not the relative ambiguity of an incomplete contract, since most useful contracts include several levels and degrees of ambiguity. It is the total ambiguity of the basic definition that makes such a contract vague and, thus, potentially tricky for the ones lured in it").

74. *See IEEE-SA Standards Board Bylaws*, SASB BYLAWS, § 6, cl. 6, *supra* note 6. Under 6.1. Definitions. The definition of a "reasonable rate" is mandatory in the sense that it applies to all essential patent claims for which the IEEE-SA has an accepted LoA. It is, however, not mandatory in the sense that patent holders can still avoid giving a FRAND commitment and nonetheless participate in the standard setting activities of IEEE-SA. The IEEE-SA updated patent policy not only provides a definition of reasonable rates, it also sets out the legal consequences that a FRAND commitment precludes SEP owners from seeking injunctive relief against willing licensees.

SEP owner that makes a FRAND declaration commits that it will not charge royalties up to the value implementers would incur to switch technologies. The IEEE-SA patent policy also recommends the consideration of three "*factors*" in the determination of reasonable rates during licensing negotiations.[75]

Several US courts have also leaned towards rules. Some cases have added a test to the FRAND standard. The test seeks to identify the source of economic value for the patented technology. The point is to distinguish the value of technology itself – which deserves to be compensated as part of FRAND royalties – from value stemming from standardization – which does not.[76]

In other cases, courts have developed a method for the valuation of FRAND royalties, bringing the issue closer to a rule than a standard. Some have followed a "top down" approach[77] focusing either on the Smallest Saleable Patent Practicing Unit ("SSPPU")[78], or the end-product.[79] Others have applied "*comparable license*

75. *See* IEEE-SA Standards Board Bylaws, *supra* note 6. Under the first factor, the rate should reflect the value contributed by the SEP-protected invention to the "value of the relevant functionality of the smallest saleable compliant implementation" of the SEP. Under the second factor, account shall be given to the relative value contributed by the SEP to the smallest saleable compliant implementation "in light of the value contributed by all Essential Patent claims for the same IEEE standard practiced in that Compliant Implementation." Finally, the third factor recommends considering "existing licenses covering use of the same Essential Patent Claim", provided they are "comparable" and were not obtained under the "threat of a Prohibitive Order." Possible benchmarks include licensing terms entered into following voluntary negotiations or granted by rate setting courts in the context of damages litigation.

76. Bosworth et al., *FRAND Commitments and Royalties for Standards Essential Patents, in* COMPLICATIONS AND QUANDARIES IN THE ICT SECTOR 19, 29 (A. Bharadwaj et al. eds., 2018). Ericsson v. D-Link Sys., 773 F.3d 1201, 1232 (Fed. Cir. 2014). The Court identifies two types of apportionment that must be realized under FRAND. First, the patented feature must be apportioned from all of the unpatented features. Second, the patentee's royalty must be premised on the value of the patented feature, not any value added by the standard's adoption of the patented technology. This approach ensures that the royalty award is based on the incremental value of the patented invention and not the added value of the standardization process. In *In re Innovatio*, Judge Holderman ruled that "the court's RAND rate [] must, to the extent possible, reflect only the value of the underlying technology and not the hold-up value of standardization." In re Innovatio IP Ventures, LLC Patent Litig., No. C-11-9308, ECF No. 975, 16 (N.D. Ill. 2013). This type of apportionment is also stemming from the joint report from the FTC and DOJ. U.S. Dep't of Justice & Fed. Trade Comm'n, Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition, 118 (2007).

77. Under the top down approach, a court must first, identify the aggregate royalty rate for all SEPs. Various factors may be considered to set this top (e.g. declaration to SSO, profit margin of standard implementing products, value to the standard, industry norms…). Second, the court must compare the number of patents (or families) a SEP owner has with the total number of SEPs, deriving a percentage ration. Finally, some adjustment factors may be taken into consideration such as the value of the SEPs at issue, comparable licenses etc. In the US, *see e.g.*, Microsoft Corp. v. Motorola*,* 795 F.3d 1024 (9th Cir. 2015); TCL Commc'n. Tech. Holdings Ltd. V. Telefonaktiebolaget LM Ericsson, 943 F.3d 1360, 1367-1369 (Fed. Cir. 2019). In Europe, *see e.g.*, In the UK: Unwired Planet Int'l, Ltd. v. Huawei Tech. Co., Ltd. [2017] EWHC 711 (Pat); In the Netherlands: Hof's Hague 7 februari 2019, *(Philips/Wiko)*. Other methods have also been proposed such as the "present-value-added" or the "cost-based approaches." *See* Thomas Cotter, Transparency More Crucial Than New FRAND Royalty Methods, Law360 (June 14, 2021).

78. See the decision of Judge Selna in TCL v. Ericsson, Memorandum of Findings of Fact and Conclusions of Law, No: SAVC 14-341 JVS(DFMx) and No: CV 15-2370 JVS(DFMx), 17 (C.D. Cal. 2017). *See also* the decision of Judge Koh in FTC v. Qualcomm Inc., 411 F. Supp. 3d 658, 783 (N.D. Cal. 2019).

79. HTC Corp. v. Telefonaktiebolaget LM Ericsson, No. 6:18-CV-00243-JRG, 7 (E.D. Tex. Nov. 7, 2018). Judge Gilstrap relied on the end-product because the market evidence has failed to embrace HTC's preferred SSPPU methodology. He disagreed with the manufacturer's argument that Ericsson's royalty rates must be based on the cellular baseband processor (i.e., allegedly the "smallest saleable patent practicing unit" for the SEPs at issue), rather than the cellular mobile device as a whole.

rates"[80] It is not the idea here to discuss the merits of these methodologies. Instead, the point is this. All examples cover methods specified *ex ante* to reach a FRAND determination, and therefore display more similarities with a rule than a standard.

3. Hybrid

The judgment of the CJEU in *Huawei* gives an example of a hybrid approach between rules and standards. The Court was asked whether a FRAND-pledged SEP owner abuses a dominant position in breach of EU antitrust law when it seeks a court injunction against unlicensed implementers. The Court adopted a rule of exoneration. A dominant SEP owner does *not* infringe antitrust law by seeking an injunction "as long as" three procedural "conditions" are observed. The three conditions are: (i) sending of a prior and accurate notice of infringement to an unlicensed implementer; (ii) offering a "written offer for a licence on FRAND terms" which specifies royalty rates and calculation; (iii) leaving the unlicensed implementer sufficient time to react.

Huawei constitutes a hybrid rule. The procedural framework does not specify what offered royalties are FRAND. The *Huawei* decision therefore sets out a rule by specifying a procedural framework, but the flexibility left to courts in regard of the interpretation of the three conditions represent the standard-ness of the test.[81]

B. Preliminary conclusions

What do we learn from the above examples of FRAND rules and standards? First, while courts in Europe have readily embraced rules, especially after the CJEU decision in *Huawei*, US courts have followed a standards approach. US courts have approached FRAND under a "*totality of the circumstances*" test that consists in balancing all relevant factors.[82] The standards approach is less concerned with specifying the law than it is concerned with fact-finding. A standards approach to FRAND fits well with the Anglo-American legal tradition where facts intensity and avoidance of generalization is "*thought to be the genius of the common law system.*"[83]

There is, however, a noticeable evolution in US case law. Courts have tended to move towards a more rule-ish equilibrium. US courts have slowly adopted judicial rulemaking on SEPs by modifying these standards to accommodate the

80. *See, e.g.*, HTC Corp. v. Telefonaktiebolaget LM Ericsson, 407 F. Supp. 3d 631, 639 (E.D. Tex. 2019) ("[T]he comparable licenses provide the best market-based evidence of the value of Ericsson's SEPs and that Ericsson's reliance on comparable licenses is a reliable method of establishing" rates consistent with its FRAND commitment). Some courts have relied on multiple methodologies in a single instance. In the US, *see e.g.*, TCL Commc'n Tech. v Telefonaktiebolaget LM Ericsson, 943 F.3d 1360, 1368 (Fed. Cir. 2019); Exmark Mfg. Co. v. Briggs & Stratton Power Prod. Grp., LLC, 879 F.3d 1332, 1348 (Fed. Cir. 2018). In Europe, *see e.g.*, Unwired Planet Tech. v. Huawei [2017] EWHC 711 (Pat) 5; Unwired Planet Tech. v. Huawei [2020] UKSC 37.

81. *See, e.g.*, Philipp Maume, Huawei ./. ZTE*, or, how the CJEU closed the Orange Book*, 6(2) QUEEN MARY J. INTELL. PROP. 207, 223 (2016) ("The CJEU is unable to prescribe the negotiation procedure in every detail. Instead, the court resorts to general terms []. This provides national courts with leeway to be flexible in different fact settings, negotiation processes and business cultures").

82. *See* Antonin Scalia, *The Rule of Law as a Law of Rules*, 56 UNIV. CHI. L. REV. 1175, 1179 (1989).

83. *Id*. at 1177.

particular fact that there is a FRAND commitment. US courts have also elaborated FRAND specific rules. For example, US courts more consistently define the consequences of a commitment on injunctive relief[84], or the specific apportionment and valuation methods applicable to FRAND rates[85]

Second, FRAND rules are not only judicial. The above examples show that adoption of rules by private ordering institutions is an important feature of legal regulation of FRAND. To date, the literature has not discussed the trade-offs involved in the private production of rules compared to judicial rulemaking.

Third, FRAND has not attracted public rulemaking. The state of affairs may, however, change in Europe. In 2019, the Joint Research Center (JRC) of the European Commission ("EC") concluded in its report on *Making the rules: The Governance of Standard Development Organizations and their Policies on Intellectual Property Rights*[86] that public policymakers should prioritize the strengthening and further development of the "*procedural and safe-harbour approaches."*[87] On the specific question of FRAND, the report noted that, in light of the "*string of very complex and sometimes inconsistent decisions and pronouncements that is unsustainable in the long run*"[88] the EC, together with other public authorities, would be wise to "*produce clear guidance on the appropriate procedural principles for SDO policy development*"[89] With the new initiative, European law might pivot towards more legislative rulemaking. It remains unclear

84. *See, e.g*., Realtek Semiconductor Corp. v. LSI Corp., 946 F. Supp. 2d 998, 1006 (N.D. Cal. 2013) ("The act of seeking injunctive relief is. . . a breach of defendants' promise to license the patents on RAND terms."); Apple Inc. v. Motorola, Inc., 757 F.3d 1286, 1332 (Fed. Cir. 2014) ("[A]n injunction may be justified. . . where an infringer unilaterally refuses a FRAND royalty or unreasonably delays negotiations to the same effect."). Outside of this narrow set of facts, an injunction would not be considered as justified. *See* Microsoft Corp. v. Motorola, Inc., 795 F.3d 1024, 1048 n.19 (9th Cir. 2015) ("[A] RAND commitment does not always preclude an injunctive action to enforce the SEP."). If it does not always preclude injunctive relief, it may nevertheless condition it. *See* Godo Kaisha IP Bridge 1 v. TCL Commc'n Tech. Holdings Ltd., No. 15-634-JFB, 2019 U.S. Dist. LEXIS 70752 (D. Del. Apr. 24, 2019). The IEEE policy also limits the possibility of patent holders to seek or obtain injunctive relief. Patent holders are prohibited from seeking or obtaining injunctive relief unless a potential licensee refuses to comply with the outcome of infringement litigation. *See also* U.S. Dep't of Just. & U.S. Patent & Trademark Off., Policy Statement on Remedies for Standards-Essential Patents Subject to Voluntary F/RAND Commitments 4 (2019) ("[A] patent owner's F/RAND commitment is a relevant factor in determining appropriate remedies…").

85. *See* Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233, at *45 (W.D. Wash. Apr. 25, 2013) ("Neither the IEEE nor the ITU specifies that FRAND terms must be determined using an incremental value approach."). *See also* HTC, Corp. v. Telefonaktiebolaget LM Ericsson, No. 6:18-CV-00243-JRG, 2019 U.S. Dist. LEXIS 2872, at *19 (E.D. Tex. Jan. 7, 2019) ("[A]s a matter of French law, the FRAND commitment embodied in the ETSI IPR policy does not require a FRAND license to be based on the SSPPU. Rather, whether a license meets the requirements of FRAND will depend on the particular facts of the case, as there is no prescribed methodology for calculating a FRAND license.") This begets the question of what these courts would have done, had those SSOs provided guidance on FRAND terms. In this same instance, Judge Gilstrap relied on the end-product because the market evidence has failed to embrace HTC's preferred SSPPU methodology. He disagreed with the manufacturer's argument that Ericsson's royalty rates must be based on the cellular baseband processor (i.e., allegedly the "smallest saleable patent practicing unit" for the SEPs at issue), rather than the cellular mobile device as a whole. HTC Corp. v. Telefonaktiebolaget LM Ericsson, 407 F. Supp. 3d 631, 636 (E.D. Tex. 2019).

86. Baron et al., *supra* note 10.

87. *Id.* at 17.

88. *Id*.

89. *Id.* at 18.

whether the EC will adopt a strict rule, a procedural/hybrid rule or favor a standard approach.

Fourth, the issue of whether to specify a legal command as a rule or standard is different from the question of its content. The sharply distinct FRAND rules adopted in *Huawei* and in the IEEE-SA revised patent policy show this. *Huawei* conveys a procedural understanding of FRAND. The Court suggests that FRAND imposes courtesy obligations on SEP owners and implementers. This sits at odds with the distributional content of the IEEE-SA rule. The definition of reasonable rates sets a cap on the price of standardized technologies.

Fifth, it is uneasy to say which of the *Huawei* or IEEE-SA FRAND rules is "*complex*" or "*simple.*" In Kaplow's work, a rule is simple rule if it is likely to be over or under inclusive. An example is the 55mph rule. In a FRAND context, the jury is out on which of the procedural and or distributional rule is the simplest.

Sixth, FRAND rules can be optional. This is the case of the 15 Georgia Pacific factors for the calculation of patent damages, as well as of the three factors found in the IEEE-SA for the determination of reasonable royalties.

III. OPTIMAL FRAND DESIGN AND HIDDEN TRADEOFFS

The literature on rules and standards supplies a clear message. FRAND rules tend to dominate standards. However, the wisdom does not hold in all circumstances. First, whether FRAND is more optimal as a rule or standard is an empirical question (A). Second, the optimal design of FRAND may be a function of the *agent* in charge of promulgating the rule (B). Last, depending on its type, a rule may lead to different trade-offs which have to be taken into consideration (C).

A. Empirics as a Guide for FRAND Rules v Standard

A comparison of rules versus standards demands an assessment of costs differentials at both promulgation and enforcement stages.[90] In the abstract, the cost analysis favors a standard at promulgation stage and a rule at enforcement stage. The question, however, is ultimately empirical. Levels of costs are context dependent. The following section studies the cost differentials of rules and standards in respect of FRAND.

The promulgation of a FRAND rule is likely to be costly. There are, in particular, two types of costs to consider. First, the cost of obtaining and analyzing information about the rule's probable impact.[91] This can be referred to as the informational cost. Second, the cost of securing agreement among participants in the rulemaking process. This can be called a transactional cost.[92]

90. *See* Kaplow, *supra* note 2, at 574 (explaining costs of legal advice also matter in the model. Rules are cheaper to learn than standards. In a SEPs context, firms on both sides will seek legal advice. FRAND disputes often involve sophisticated businesses, at least on one side (the patent owner) who make use of the legal system to protect their intangible assets. This means that at least on one side, there is significant recourse to legal advice, be in in house or outsourced. With this, there should be a presumption in favor of FRAND rules.).

91. *See* Diver, *supra* note 33, at 73.

92. *See* Posner & Ehrlich, *supra* note 26, at 267.

The informational cost of FRAND rulemaking is unquestionably high. In past decades, research on FRAND has skyrocketed. There is no way to accurately measure the costs of information. But informational costs are arguably high for legislative rulemaking because of the non-specialist nature of lawmaking institutions. Learning is hard for non-specialists. By contrast, informational costs are lower in standard committees within SSOs, because there is more expertise but also industry participation. Learning by specialists is faster. Last, in administrative authorities and the judiciary, informational costs may be between those incurred by legislators and SSOs. Administrative authorities have expertise, but little information about industry. Courts have less expertise, but more industry information due to disclosure in litigation.

The transactional cost of FRAND rulemaking correlates with the number of parties whose agreement is necessary to promulgate a rule. The transactional cost can be expected to be highest for legislative rules, followed by private rulemaking bodies like SSOs that produce rules through negotiation, and ultimately unilateral decision or rulemaking by administrative and judicial authorities. Observed initiatives giving content to FRAND appear to confirm this insight. There is to date no legislative statute on FRAND. Only a few SSOs have adopted specific rules regarding FRAND, and many statements from antitrust and patent agencies in this field have been made.[93] We witness the existence of numerous judicial rules both in the US and in Europe.

At enforcement stage, the cost analysis however favors rules. Under a rule, the amount of social resources expended in dispute resolution decreases. The reason for this is that a rule withdraws from the suit many of the issues that occupy judges and lawyers.[94] In a FRAND context, for example, a rule like *Huawei* removes distributional discussions from the trial (and vice-versa), and focuses litigation on procedural issues. Note, importantly, that a rule appears to have a neutral effect on litigation frequency. By making the law more predictable, a rule reduces the need to subject a dispute to adjudication. At the same time, by making the cases smaller, a rule decreases the costs of, and induces, litigation.[95]

1. Statistics

Which of the promulgation cost differential versus the enforcement cost differentials dominates the other? The answer, says Kaplow, is essentially a function of frequency:[96] "*the central factor influencing the desirability of rules and standards is the frequency with which a law will govern conduct.*"[97] Kaplow does not define

93. *See generally* U.S. Dep't of Just. & U.S. Patent & Trademark Off., Policy Statement on Remedies for Standards-Essential Patents Subject to Voluntary F/RAND Commitments 4 (2019); Renata B. Hesse, Response to Institute of Electrical and Electronics Engineers, Incorporated, U.S. Dep't Justice (Feb. 2, 2015). For the EU, *see generally* Samsung—enforcement of UMTS standard essential patents, AT.39939, Commission decision of April 29, 2014; Motorola—Enforcement of GPRS standard essential patents, AT.39985, Commission decision of April 29, 2014.

94. *See* Ehrlich & Posner, *supra* note 26, at 265.

95. *See* Diver, *supra* note 33, at 74; Ehrlich & Posner, *supra* note 26, at 265 (explaining the settlement point).

96. *See* Kaplow, *supra* note 2, at 573.

97. *Id*. at 621.

when an event is frequent. But Kaplow notes that if some event arise "*even a dozen times, that may be sufficiently frequent to warrant an ex ante wholesale resolution of the problem.*"[98] In other words, rules are also preferable at low occurrence levels. The question, however, is this: where to set the threshold?

At a high level, an answer might be that the question is losing relevance. FRAND litigation has kept increasing over the past decade.[99] Moreover, besides the multiplication of distinct cases, each case may repeat itself at several levels of the judicial system. This is all the more true in unsettled areas of the law like FRAND, where incentives to appeal particular aspects of cases may be substantial. Last, the repeated nature of standardization may justify *ex ante* investments in rules.

At the same time, however, an empirical analysis of FRAND disputes in Europe suggests that the number of cases might not be that high, despite being on the rise in the last decade. The patent litigation database *Darts-IP*[100] as well as the *4iP Council Case Law* database[101] give a general overview of the frequency of FRAND litigation in Europe.[102] Out of 448 collected cases by Darts-IP from 2010 to 2019 (with preliminary result from 2017 onwards) concerning "patent licenses", 121 decided cases relate to FRAND (i.e. 37 per cent of cases). In the electrical engineering industry, between 2004 and 2017, courts in Europe have seen 213 patent license litigation, out of which 99 cases raised FRAND concerns. Similar to the findings of previous studies of SEP litigation, FRAND cases in Europe (and in particular in Germany and the UK) have increased over time. In particular, following the *Huawei* decision, the number of cases concerning FRAND has clearly increased. For a total of 163 cases relative to FRAND disputes between 2006 and November 2021, 97 (i.e. almost 60 per cent of the cases) took place after the CJEU decision.

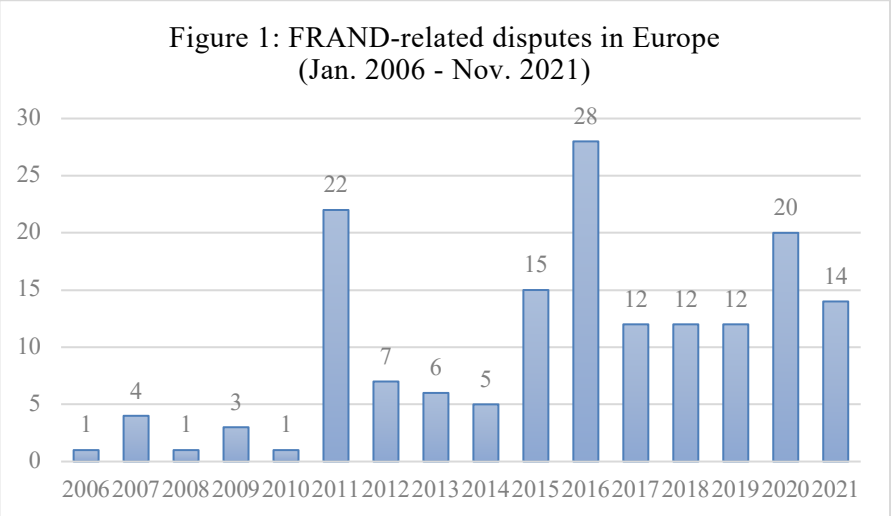
98. *Id*. at 600.

99. *See generally* Jorge L. Contreras, *Fixing FRAND: A Pseudo-Pool Approach to Standards-Based Patent Licensing*, 79 ANTITRUST L.J. 47, 48 (2013).

100. CLARIVATE, https://perma.cc/CJ9N-6SPH (Interestingly, the Darts-IP database also breaks down the result by industry type, including; telecommunications, digital communication, basic communication processes, IT methods for management, audio visual technology, semiconductors, electrical machinery/apparatus/energy, and computer technology.).

101. 4IP COUNCIL, [https://perma.cc/L2BX-7588]. (This database lists national cases post CJUE ruling *Huawei v. ZTE.* As of June 2021, 4iP Council has collated 64 court cases which have been decided after the CJEU decision in *Huawei v. ZTE* of July 2015. The majority of these cases took place in Germany (39 instances).).

102. The courts of Germany, France, the Netherlands, Belgium, Italy and the United Kingdom have been included in the search.



2. Discussion

The picture that emerges from the data in terms of frequency of FRAND litigation is hard to interpret. The numbers available make it difficult to know if the frequency hypothesis of Kaplow justifies the adoption of a rule over a standard or what type of rules should be adopted. Even if the preliminary statistical evidence seems to suggest that we are above the dozen cases identified by Kaplow as a good enough threshold for a rule, this does not tell us what kind of rule is optimal. The numbers do not tell, for example, the proportion of FRAND disputes compared to the overall litigation of patents in Europe.[103]

One useful data point however is that a FRAND rule a la *Huawei* does not substantially reduce litigation frequency. A procedural rule may thus deliver the main efficiency identified in the literature, relative to a standard. By making the cases smaller, litigation increases, and the ATC of FRAND litigation diminishes. The finding relativizes early legal commentary that criticized *Huawei* as providing insufficient guidance to national courts, and keeps fueling litigation.[104] That said, in the US, where courts are more and more prone to determine some fundamental characteristics of FRAND (*e.g.*, valuation technique or consequence for injunctive relief), litigation has not receded, suggesting that substantive rules do not reduce litigation either.

103. *See* Jorge L. Contreras et al., *Litigation Standards-Essential Patents in Europe: A Comparative Analysis*, 32 BERKELEY TECH. L.J. 1457 (2018) (In this latter research, the authors found that SEPs litigation in Germany and the UK between 2000 and 2008 amount to, respectively, 8% and 6% of all litigation. Overall, the authors found that SEPs have been asserted in Europe at significant levels. Arguably, FRAND related issues would only constitute a subset of these percentages.).

104. *See* Spyros Makirs & Claudia Tapia, *Confidentiality in FRAND licensing after Huawei v ZTE: National Courts in Europe Searching for Balance*, 3 LES NOUVELLES 210 (2018).

B. The Role of Agency

Assume as true the proposition that FRAND rules slightly dominate standards. One follow-up question is who should determine the rule, and whether this affects cost differentials, including by upsetting the superiority of FRAND rules over standards?

Four categories of agents can adopt FRAND rules: (1) private ordering institutions like SSOs , (2) public administrations (like the EC or the FTC) , (3) legislators, and (4) courts . In the US and in Europe, each category of agent already took a stance on FRAND rules. In this section we discuss if and how the costs of rules vary depending on the agent.[105]

1. Private ordering institutions

FRAND rules designed by private ordering institutions like SSOs are suboptimal. Promulgation costs are likely to be high in consensus driven environments (a). And the non-binding nature of private rules on courts limits the application of the Kaplow frequency hypothesis, maintaining high enforcement costs (b).

a. The Promulgation Costs of Consensus

Rules developed in private ordering institutions are collective. The condition that makes a private rule cheap is essentially a function of transaction costs. Even if SSOs have a narrow membership, transaction costs are not necessarily low because of a simple property. Consensus is often the decision-making norm in SSOs. Consensus is sometimes imposed by law,[106] and almost always applied in practice.[107, 108] Consensus raises the costs of FRAND rulemaking.[109] Unless an SSO strays from the consensus norm, transaction costs are likely to be high. And an SSO

105. *See* Rudi Bekkers et al., *Pilot Study for Essentiality Assessment of Standard Essential Patents*, JRC Report (2020) [https://perma.cc/HLZ7-3H4L] (We leave aside the possibility of adding other agents to the debate on the determination of FRAND. It has been suggested that other agencies, such the European Patent Office, should be more engaged with essential questions related to SEP, such as the determination of essentiality for example.). *See also* Proposal 11 of the Group of Experts on Licensing and Valuation of Standard Essential Patents "SEP Expert Group", Contribution to the Debate on SEPs p. 63 (Jan. 2021). Available at: https://perma.cc/TY9Q-CL8A. *See also* Proposal 75 of the Group of Experts on Licensing and Valuation of Standard Essential Patents "SEP Expert Group", Contribution to the Debate on SEPs p. 168 (Jan. 2021). Available at: https://perma.cc/N8KY-KDMJ. (explaining a discussion about Licensing Negotiations Groups (LNGs) as new actors on the FRAND scene).

106. In the US, the definition of SDOs given in the Standards Development Organization Advancement Act (SDOAA) of 2004. 15 U.S.C §4301(a)(8) an "*organization that plans, develops, establishes, or coordinates voluntary consensus standards*." In the EU, the requirement for consensus is even more explicit. *See* Annex II Regulation (EU) No 1025/2012 of the European Parliament and of the Council of 25 October 2012.

107. In many SSOs active in the wireless industries where FRAND-pledged disputes arise (namely ETSI, CEN-CENELEC and ITU).

108. JRC Report *supra* note 11, at 12.

109. *See* Chiao et al., *The Rules of Standard-Setting Organizations: An Empirical Analysis* 17 (Nat'l Bureau of Econ. Rsch., Working Paper No. w11156, 2005). Based on their survey, they find that 34% and 27% use majority voting rules and super-majority to approve standards, respectively; 13% of organizations use consensus. Those authors have no information for the remaining 25% of organizations.

suspension of the consensus norm is not cost free. Intermittent deviations from consensus alienate standards participants and may lead to membership attrition. Besides, deviations from consensus fuel concerns of capture by specific interests, and in turn raise antitrust risk.[110]

The process that led to the adoption of the IEEE-SA revised patent policy drives the point home.[111] Four drafts of the updated patent policy were published for public review and comment. A flood of submissions and comments (680) were received. The definition and calculation of reasonable rates proved particularly contentious. A debate occurred between technology developers willing to maintain flexibility in *ex post* licensing negotiations, and technology implementers, intent on limiting *ex ante* the bargaining power of SEPs holders through a strict definition of FRAND.[112] In normal circumstances, such a divide would have been fatal to the proposed policy changes. However, various organs of the IEEE-SA decided to deviate from standard policy,[113] and approved the controversial modifications under a majority vote.[114] Following the adoption of the patent policy, several disgruntled members of IEEE's (unsuccessfully) challenged the renewal of its accreditation as a standards body before the American National Standards Institute ("ANSI").

In September 2020, the US DOJ, which had issued a positive Business Review Letter at the time of the policy change,[115] updated its letter. The DOJ clarified that the first Letter was not an endorsement of the IEEE policy (but only that it would not challenge the policy) and that IEEE should re-assess its current Patent Policy.[116] Moreover, the Board of Standards Review (BSR) of ANSI refused to approve two IEEE standards created under the latest patent policy. Commentators consider that negative or missing LOAs from crucial SEP owners explain the BSR decision.[117] Recently, the DOJ restored the 2015 Business Review Letter concerning the IEEE's policy and reinterpreted the supplementary letter issued in 2020 as a piece of advocacy, not one of formal guidance.[118] Arguably, the adoption of a substantive FRAND rule in the IEEE patent policy has affected members'

110. *See* Olia Kanevskaia & Nicolo Zingales, *The IEEE-SA Patent Policy Update under the Lens of EU Competition Law*, 12 EUR. COMPETITION J., 195 (2016).

111. *Id*. and Ron Katznelson, *Perilous Deviations from FRAND Harmony—Operational Pitfalls of the 2015 IEEE Patent Policy*, 2015 IEEE 9th International Conference on Standardization and Innovation in Information Technology (SIIT), Oct. 8, 2015, at 1-10.

112. *See* David Crouch, *Battle over IP rights could hold back next-generation technology*, FIN. TIMES, June 11, 2015.

113. *See* the IEEE-SA Standards Board Bylaws, *supra* note 6. Article 2.1 provides that "consensus is established when substantial agreement has been reached by directly and materially affected interest categories." The notion of substantial agreement "means much more than a simple majority."

114. Letter from R. B. Hesse, Acting Asst. Att'y Gen,. U.S. Dep't of Justice, Antitrust Div., to Michael A. Lindsay (2015), available at https://www.justice.gov/atr/response-institute-electrical-and-electronics-engineers-incorporated [https://perma.cc/RGN6-2EK4].

115. *Id.*

116. Letter from M. Delrahim, Asst. Att'y Gen., U.S. Dep't of Justice, Antitrust Div., to Sophia A. Muirhead, Gen. Counsel & Chief Compliance Officer, IEEE re: Business Review Letter to IEEE (2020), available at https://www.justice.gov/atr/page/file/1315291/download [https://perma.cc/4R7F-U789].

117. *See* Delimatsis et al., *Strategic Behavior in Standards Development Organizations in Times of Crisis*, 29 TEX. INTELL. PROP. L.J. 1, 37 (2019).

118. Florian Muller, *DOJ downgrades Delrahim letter to IEEE on standard-essential patents: inter-agency rapprochement with FTC on SEP enforcement?,* Foss Patents (2021), available at: http://www.fosspatents.com/2021/04/doj-downgrades-delrahim-letter-to-ieee.html [https://perma.cc/8GVX-QMFC].

enthusiasm towards standardization and has, at any rate, failed to produce a reliable degree of clarity.

Counter examples exist. In 2006, VITA (an SDO developing standards for VMEbus technology and electronic interconnections and systems design) adopted a FRAND rule that required an SEP owner to disclose maximum royalty rates *ex ante*. Failure to comply with the rule meant that SEP owners would have to license on a royalty-free basis. The policy modification received a positive Business Review Letter from the US DOJ and ANSI re-accredited VITA as an American Standards Developer that complies with its requirements.[119] Moreover, Contreras observed that there was a net increase in membership following the policy change and that a majority of VITA members welcomed the revised policy.[120] In this case, the adoption of a FRAND rule by the Board of Directors of an SSO did not appear to weaken members' participation incentives.

The transactional costs of private rulemaking appear to be a function of an SSO's internal governance and decision-making process. A rule of consensus (like in ETSI) tends to generate high transaction costs. By contrast, a leadership-driven model (like IEEE-SA or VITA) tends to generate lower transactional costs. A leadership-driven model limits transactional costs because it involves less parties. Nevertheless, transactional costs come back with a revenge. Inside and outside SSOs, leadership changes. When there is a change in leadership in an SSO or in outside organizations like antitrust agencies, the FRAND rule will incur renegotiation costs as the IEEE example shows. Leadership-driven models of rule might thus be more vulnerable over time.

b. The Enforcement Costs of Non-Binding Rules

Non-binding rules do not yield clear enforcement costs reductions. Courts can ignore non-binding rules (i). And standards participants can bypass non-binding rules (ii).

i. Courts

The main advantage of rules over standards is a reduction in enforcement costs.[121] With a rule, private or public, cases are thinner. Some issues of law or facts are removed from the scrutiny of courts.

The effect does not necessarily hold with private FRAND rules. The reason is this: the reduction in enforcement costs identified in the literature assumes rules with binding authority to which courts defer. But with private FRAND rules, courts' deference is not a given. Compared to legislative rules which bind the judiciary, private rules do not. Short of an attitude of judicial deference towards private rules, no decrease in enforcement costs effect can be presumed, and the Kaplow frequency

119. *See* Delimatsis et al, *supra* note 118 at 10-11.

120. Jorge L. Contreras, *An Empirical Study of the Effects of Ex Ante Licensing Disclosure Policies on the Development of Voluntary Technical Standards*, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, No. GCR 11-934, 1 (2011).

121. *See* Kaplow, *supra* note 2, at 570.

hypothesis does not hold. A policy of judicial deference towards private rules is thus a necessary condition to predict a reduction in enforcement costs.

Is such a policy applied in FRAND contexts? Unfortunately, judicial deference does not come with a label "deference" attached on it. Courts practice deference by delegation. Two types of delegations are possible. Direct delegation occurs when a court expressly considers rules designed by private ordering institutions.[122] Direct delegation can be observed in certain areas of the law where private ordering plays a role, for example in commercial arbitration where enforcement courts only review arbitral awards on public order grounds.[123] Indirect delegation arises when a court imitates the rules set by private ordering institutions or gives teeth to rules through general principles of law, including contract, promissory estoppel or legitimate expectations.[124]

Scholars differ in their evaluation of the level of deference displayed by courts in FRAND contexts. Contreras notes that courts have resorted to "*privately developed product standards, disclosure rules, etc. to give meaning to general concepts in the law, such as 'duty of care', 'negligence', or 'fairness.'*"[125] Regarding FRAND, the commitments made within SSOs have informed courts on, notably, the royalty rate that should qualify as fair and reasonable. It is also reported that US courts have shown interest in receiving guidance from SSOs in order to determine the valuation mechanism of SEPs.[126] By contrast, Lemley writes that if courts respect the agreements between SSOs and parties, they nonetheless have to determine exactly what the terms of these agreements require. Discussing the IEEE policy, Lemley calls into question its binding nature, and leans towards denying it much authority on courts.[127]

Besides, there is one hard limit to delegation. Even if judicial delegation towards SSOs was to intervene, the first court asked to adjudicate FRAND cases would have to verify the compatibility of the rule with overarching statutes like antitrust law.[128]

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122. *See* Jonathan Macey, *Public and Private Ordering and the Production of Legitimate and Illegitimate Legal Rules*, 82 CORNELL L. REV. 1123, 1140 (1997).

123. *See* Christopher R. Drahozal, *Private Ordering and International Commercial Arbitration*, 113 DICK. L. REV. 1031, 1034 (2009).

124. *See* Posner *supra* note 47 at 106. He hypothesizes that courts set rules that imitate previous customs or doctrines. *See also* Steven Schwarcz, *Private Ordering*, 97 NW. UNIV. L. REV. 319, 344 (2002).

125. Jorge L. Contreras, *From Private Ordering to Public Law: The Legal Framework Governing Standard-Essential Patents*, 30 Harv. J.L. & Tech., 212, 219-220 (2017).

126. Rahul Vijh, *Understanding Damages Calculation in SEP Litigation, IP* Watch Dog (2021), available at: https://www.ipwatchdog.com/2021/01/30/understanding-damages-calculation-sep-litigation/id=129501/ [https://perma.cc/7U6Q-59VS].; *see also* Mark A. Lemley, *The Law and Economics of Internet Norms*, 73 CHI.-KENT L. REV. 1257, 1260 (1998) ("I take a skeptical look at . . . the idea that law should give deference to private norms on the Net"); *id.* at 1261 ("The concerns I address . . . are only about that subset of norm theory which takes a particular prescriptive position in favor of deference to extralegal private ordering").

127. *See* Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889, 1913 (2002).

128. *See* Jody Freeman, *Private parties, public functions and the new administrative law*, 52 ADMIN. L. REV.813, 827 (2000) ("Although SSOs have taken steps to ensure compliance with due process, and have opened their meetings to public view [] still provide opportunities for self-dealing and anti-competitive behavior").

The issue is not just theoretical. FRAND rulemaking by SSOs creates price fixing concerns.[129] These concerns are red flagged in the 'ETSI Guidelines for Antitrust Compliance' which stipulate that negotiation between members regarding licensing terms, including any price term, shall not be conducted in ETSI.[130] By extension, private rulemaking over licensing terms could fall afoul of antitrust laws prohibitions on coordinated conduct.

Private FRAND rules will inevitably be scrutinized in *ex post* enforcement proceedings thereby limiting enforcement costs savings. SSOs internal policies (including patent policies) generally serve as evidence (similar to expert testimonies or soft law instruments) for the determination of FRAND. But these remain general guidelines for judges. They do not strip the adjudicator from its discretionary powers. Besides, SSOs which have been formally recognized by governmental regulators (such as ETSI, ISO, and CEN-CENELEC) may be given more deference than quasi-formal groups or privately organized consortia.[131]

ii. Standards participants

Another significant limitation arises if standards participants can avoid the FRAND private rule. In a critique of Kaplow's framework, Ayres takes the example of contract law to show the limited effects of non-binding rules. When statutory contract law sets a default or a gap filler rule, parties can transact around.[132] Similarly, Radin points to the fact that "*a coercive sovereign is necessary to remove the incentives of self-interested individuals to break the rules… .*"[133] Without coercion, standards participants can avoid a non-binding rule like a private standard that has not been centralized and already implemented within a community.[134]

In a standards context, the possibility of FRAND rule bypass has been observed. Following the revision of the IEEE-SA patent policy, some companies have filed *negative* LoAs, in which they declared being unwilling to license under the new policy. Others have found ways to work around the revised patent policy

129. In the EU, the general view is that standard setting and SSOs are unproblematic from an antitrust standpoint (as long as standards respect basic principles of non-discrimination, openness and transparency).

130. *ETSI Directives Version 43*, at pt. C.4. (2021). Available at: https://portal.etsi.org/directives/43_ETSI_directives_20_may_2021.pdf [https://perma.cc/WM3X-S3TM]. The guidelines also mention that "voluntary, unilateral, public, ex ante disclosures of licensing terms by licensors of essential IPRs, for the sole purpose of assisting members in making informed [] decisions in relation to whether solutions best meet technical objectives, are not prohibited under ETSI Directives."

131. The European Commission placed SSOs into three broad categories: formal organizations recognized by government, "quasi-formal" groups, and smaller, privately organized consortia. Jorge L. Contreras, *Technical Standards, Standards-Setting Organizations and Intellectual Property: A Survey of the Literature (With an Emphasis on Empirical Approaches)*, *in* [2 Analytical Methods] RESEARCH HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW ch. 9, at 5 (P. Menell & D. Schwartz eds., Edward Elgar, 2019).

132. *See* Ian Ayres, *Preliminary Thoughts on Optimal Tailoring of Contractual Rules*, 3. S. CAL. INTERDISC. L.J. 1, 9-10 (1993).

133. Margaret J. Radin, *Reconsidering the Rule of Law*, 69 B.U. L. REV. 781, 789 (1989). *See also* Barak D. Richman, *Firms, Courts, and Reuptation Mechanisms: Towards a Positive Theory of Private Ordering*, 104 COLUM. L. REV. 2328, 2335 (2004).

134. *See*, for instance, Avery Katz, *Taking Private Ordering Seriously*, 144 U. PA. L. REV. 1745, 1750 (1996).

and maintained their commitment to offer FRAND licenses under the old policy.[135] Consistent with this, some observers have documented a decline in the number of *positive* LoAs submitted in the year subsequent to the adoption of the revised patent policy.[136]

SSOs do not punish refusals to give a FRAND commitment. Only a limited number of small SSOs provide for penalties like membership suspension or termination.[137] Standardization policy is not only consensual, it is "*voluntary.*" Coercive obligations and sanctions do not sit well with the undergirding ethos of providing incentives to participation and open innovation.[138]

Soft punishment devices mitigate the weakness of FRAND private rules. Standards participants who bypass a FRAND rule may suffer reputational harm.[139] Because standardization is a repeated game, failure to honor a FRAND commitment in line with the rule might lead to non-selection of the defector's technology in future iterations of the standard, or to subsequent complaints with other agencies and regulators.

Besides, in some jurisdictions, standards participants risk antitrust liability when they breach an SSO rule. In *Rambus*, a firm that had concealed patent positions to other standards participants came close to being found guilty of unlawful abuse of dominance.[140]

Indirect punishment mechanisms mitigate the non-binding effect of FRAND rules, though there are doubts that these mechanisms can compensate in ways that overcome the non-binding nature of the rules fully. Standards organizations, participants, and managers change over time, leading to imperfect reputational punishments. Currently no SEP owners have been convicted of antitrust infringement by virtue of a FRAND commitment breach, a FRAND rule, or both.

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135. *See*, for instance, Richard Lloyd, *How a $2.4bn Acquisition by Qualcomm Might Undermine the IEEE's Controversial Patent Policy*, IAM (Oct. 27, 2015), https://www.iam-media.com/article/how-24bn-acquisition-qualcomm-might-undermine-the-ieees-controversial-patent-policy [https://perma.cc/9RYP-UUGW].

136. *See* Ron D. Katznelson, *The 2015 IEEE Policy on Standard Essential Patents—The Empirical Record*, SIXTH ANNUAL ROUNDTABLE ON STANDARD SETTING ORGANIZATIONS AND PATENTS, NW. U. CTR. ON L., BUS., AND ECON. (May 17, 2018), https://works.bepress.com/rkatznelson/80/ [https://perma.cc/75Q5-DN75].

137. One such exception is that Advanced Media Workflow Association, Intellectual Property Rights Policy, *Intellectual Property Rights Policy*, ADVANCED MEDIA WORKFLOW ASSOCIATION (approved Dec. 12, 2013, effective Jan. 1, 2014), https://www.amwa.tv/_files/ugd/f66d69_0c9a4db76129480cb8186174ca8c4a5c.pdf [https://perma.cc/4RDK-SLME] (If a patent holder withholds license as to any of its SEPs, it will be deemed to have simultaneously resigned as a Member, without refund of any fees for the then current membership year); *See also Antitrust and Competition Law Policy*, SMALL CELL FORUM LTD. At E.1 (Jan. 2008, revised Feb. 2012), https://www.smallcellforum.org/wp-content/uploads/2022/05/SCF_AntiTrust_and_IPR_22-23_merged.pdf (where suspension or termination of membership can be envisioned) [https://perma.cc/36LA-REVF].

138. Some disagree, noting that "SSOs fear that some companies would not participate in standard setting, when the enforcement of SEPs is limited upfront." Knut Blind & Tim Pohlmann, *Trends in the interplay of IPR and standards, FRAND commitments and SEP litigation*, LES NOUVELLES 177, 180 (Sept. 2013). Though there is merit to this idea, it does not seem to be the dominant view in the practice of standard setting, as confirmed by the lack of provision of directly enforceable FRAND commitments in most SSOs.

139. *See* Richman, *supra* note 133, at 2340.

140. Case COMP/ 38.636 RAMBUS Summary Decision, 2010 O.J. (C 30) 17, 17.

These factors may deter SSO expenditures towards high promulgation-cost FRAND rules, even if indirect enforcement is possible.[141]

2. Public administrations

Public FRAND rules are designed by administrative agencies like the FTC or the EC. The rules are either embedded in soft law instruments like notices, guidelines or communications from the EC, or in rules and guides from the FTC. With public FRAND rules, promulgation costs are lower than with private ones. However, the legitimacy of public FRAND rules is weak (a). In addition, the Kaplow frequency hypothesis predicts a decline in enforcement costs might fail or, at best, leads to uncertain outcomes (b).

a. Weak Legitimacy of Public Rules

In principle, public administrations face low promulgation costs. The transactional costs incurred to agree on rules are low. However, the flip side of centralized rulemaking is that information acquisition is more costly. Relative to SSOs, public administrations do not have industry players within their membership. Moreover, the discretionary promulgation of a rule renders the process less legitimate, compared to more participative private rules. The risks identified for SSOs and related to consensus or capture may be further compounded.[142]

In addition, FTC and EC rulemaking authority is not unlimited. Under EU law, soft law instruments are only binding on the EC, not third parties (like courts).[143] Under US law, the FTC's rulemaking authority is heavily contested.[144] Therefore, the rules that the EC or the FTC may elaborate regarding FRAND will necessarily enjoy weaker authority than legislative rulemaking and, to some extent, judicial rulemaking.

b. Uncertain Enforcement Costs

141. *See* Ayres, *supra* note 133, at 10-11: "it may no longer be efficient to expend the high promulgation costs of a rule if private parties nonetheless intend to contract for an express private provision"; "it would be inefficient for lawmaker to expend resources promulgating more complex and tailored rules, because the expenses in creating this default would be wasted as private parties could be expected to almost universally transact around."

142. *See* Eric A. Posner, *Law, Economics, and Inefficient Norms*, 144 U. PA. L. REV. 1697, 1725 (1996).

143. *See* Case C-526/14, Kotnik and others, ECLI:EU:C:2016:570, para. 40 (and the case law cited therein). Antonios Bouchagiar, *The Binding Effects of Guidelines on the Compatibility of State Aid: How Hard is the Commission's Soft Law?*, 8 J. EUR. COMPETITION L. & PRAC. 157, 164 (2016). Oana A. Stefan, *European Competition Soft Law in European Courts: A Matter of Hard Principles*, 14 EUR. L.J. 753, 756 (2008).

144. See for example in the field of unfair methods of competition (UMC) or data protection. *The FTC's Competition Rulemaking Authority*, CONG. RSCH. SERV. LEGAL SIDEBAR (Aug. 12, 2021), https://crsreports.congress.gov/product/pdf/LSB/LSB10635 [https://perma.cc/7EUH-TEDB]. Alden F. Abbott, *FTC Competition Regulation: A Cost-Benefit Appraisal*, GEO. MASON POLICY BRIEF (June 28, 2021), https://www.mercatus.org/publications/antitrust-and-competition/ftc-competition-regulation-cost-benefit-appraisal [https://perma.cc/4Q5A-FCBV]; Ian M. Davis, *Resurrecting Magnuson-Moss Rulemaking: The FTC at a Data Security Crossroads*, 69 EMORY L.J. 781, 794 (2020).

Public rules lead to lower enforcement costs. Courts show higher deference towards decisions adopted by administrative or regulatory (i.e. public) institutions, compared to private ordering institutions like SSOs.[145] The US and the EU, however, differ with respect to degree of judicial deference. In the US, courts tend to show more deference to administrative agencies than in the EU.[146] There are essentially three types of deference in US law; the *Chevron* deference, the *Auer* deference and the *Skidmore* deference. Under *Chevron*, courts defer to agencies for the interpretation of statutes enacted by Congress while under *Auer*, courts defer to agencies for the interpretation of their own regulations. Therefore, under *Auer*, courts defer to agencies not just because of their expertise and experience, but also because the underlying rules to be interpreted originate from the agencies themselves. Under *Skidmore* deference, courts yield to federal agencies' interpretation of a statute administered by these agencies.

If the FTC were to design FRAND rules, it is unclear which type of deference would be granted by courts. For either *Chevron* or *Skidmore* deference to apply, there would first need to be a delegation of power to the FTC via a statute.[147] This could be a general statute enacted by Congress for the *Chevron* deference. Or it could be a statute promulgated by the FTC itself for the *Skidmore* deference. In both cases, some formal statutory action is required, or binding adjudication.

To date, FRAND rules are not part of any statute. If the situation changed, courts would retain relatively broad judicial review powers. For example, under *Skidmore*, a federal court must decide on the appropriate level of deference based on the agency's ability to support its position. Deference is shown if the agency can persuade the court that it has the right expertise on the issue at hand. Deference is not systematic but rather applied on a case-by-case basis.[148] Overall, recent trends in US case law suggest a decline in deference, or at least a stricter control of the scope of deference.[149]

In EU law, the CJEU defers to the Commission on certain economic and factual matters.[150] The Court grants the EC a margin of discretion in areas that

145. Herbert Hovenkamp, *FRAND and Antitrust*, 105 CORNELL L. REV., 1683, 1726-27 (2020). See the discussion on implied immunity and antitrust deference to a private contractual regime.

146. Michael P. Healy, *The Past, Present, and Future of Auer Deference: Mead, Form and Function in Judicial Review of Agency Interpretations of Regulations*, 62 U. KAN. L. REV. 633, 634 (2014).

147. *See* for instance, FTC v. AT&T Mobility LLC, 883 F.3d 848, 863 (9th Cir. 2018) (We are mindful that regulatory agencies such as the FTC and FCC "can bring the benefit of specialised experience to bear on the subtle questions in the case" […] "we afford the agencies some deference under Skidmore (…)").

148. *See* Healy, *supra* note 146, at 664-65. Since FRAND rules designed by the FTC would not regulate the administration itself, it is difficult to see how the *Auer* deference would actually work. Moreover, even in that case, courts would still be able to review instances where the interpretation is either plainly erroneous, inconsistent with the regulations or where the agency would have grossly erred.

149. This is notably due to the recent review of the *Auer* deference by the Supreme Court in *Kisor v Wilkie. See* Kisor v. Wilkie, 588 U.S. 2400, 2423 (2019).

150. Maciej Bernatt, *The Compatibility of Deferential Standard of Judicial Review in the EU Competition Proceedings with Article 6 of the European Convention on Human Rights*, INST. FOR CONSUMER ANTITRUST STUD. WORKING PAPERS, LOY. U. CHI. (June 11, 2014), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2447884 [https://perma.cc/3A4Y-SMTG].

involve complex economic assessments (in ways similar to the *Skidmore* standard). The CJEU defers to the Commission's interpretation of its own soft law.[151]

That said, even in these instances, the trend in EU jurisprudence has been to reduce the scope of deference.[152] The limited deferential attitude in Europe is justified by risks of agency capture, the principles of legitimacy and democratic process of rulemaking. The case law in *Meroni* makes clear that regulatory duties – including arguably price regulation of the kind involved in public FRAND rules – belong to entities directly accountable to the electorate, which is not the case of the EC.[153]

If the EC were to design FRAND rules, the degree of deference granted to these rules would remain uncertain. One way out of high enforcement costs for public FRAND rules consists in raising the costs of promulgation. Courts might be more inclined to show deference if the process leading to rule promulgation is acceptable from a democratic and participatory standpoint. Similarly, courts might be more inclined to maintain a high degree of discretion towards administrative authorities concentrating on their mandate, showing expertise, and not embracing multiple missions beyond their core attributions.

In sum, a tradeoff exists between low promulgation costs and high enforcement costs. And like with private rule, absent an unequivocal policy of judicial deference from courts or the legislator, the Kaplow frequency hypothesis of enforcement costs will likely fail again.

3. Legislators

The idea of FRAND rulemaking by legislatures strikes as obvious. Judicial disputes over the meaning of FRAND have grown apace. The frequency of litigation suggests support to legislative rulemaking. However, legislative rulemaking seeking to specify the content of FRAND has been rare, if not inexistent. In a comprehensive review, Heim and Nikolic show that this is true in most areas of the law where FRAND commitments are used.[154]

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151. National courts and regulatory authorities may also grant particular weight to soft law instruments. For examples in various fields of law, *see* EU SOFT LAW IN THE MEMBER STATES: THEORETICAL FINDINGS AND EMPIRICAL EVIDENCE (Mariolina Eliantonio, Emilia Korkea-aho & Oana Stefan, eds., Hart Publishing 2021).

152. *See* Andriani Kalintiri, *What's in a name? The marginal standard of review of "complex economic evaluations" in EU competition enforcement*, 53 COMMON MARKET L. REV. 1283, 1288 (2016). For example, EU judges not only must, inter alia, establish "whether the evidence relied on is factually accurate, reliable and consistent but also whether that evidence contains all the information which must be taken into account in order to assess a complex situation and whether it is capable of substantiating the conclusions drawn from it." *See also* Case C-12/03 P, Commission v Tetra Laval BV, [2005] ECR I-987, para 39.

153. Rob van Gestel & Peter van Lochem, *Chapter 2: Private Standards as a replacement for public lawmaking?*, *in* THE ROLE OF THE EU IN TRANSNATIONAL LEGAL ORDERING 27, 29 (Marta C. Gamito & Hans W. Micklitz eds., Edward Elgar 2020).

154. *See generally* Matthew Heim & Igor Nikolic, *A FRAND Regime for Dominant Digital Platforms*, 4IP COUNCIL, at 22 (2019) (Moreover, when legislative rulemaking occurs, the specification of FRAND terms is left to market transactions or regulatory institutions. For example, the European Electronic Communications Code (EECC) contains a number of provisions providing for access to and interconnection of electronic communication network on terms that are fair, reasonable and non-discriminatory, or similarly phrased terms. But the EECC does not provide for a specific definition of

The limited availability of legislative FRAND rules owes to very high promulgation costs (a), in spite of fairly limited enforcement costs (b).

a. Promulgation Costs without Learning Effects

It is costly to legislate.[155] Lawmakers incur substantial informational and transactional costs to learn and agree on rules. The reasons that drive up the costs of promulgating legislative rules are diverse. Unlike agencies, legislators are not experts. Relative to SSOs, legislators face high information asymmetries. And compared to courts, legislators do not intervene repeatedly, with the implication that there is limited learning from experience. Add to this integration costs. Lawmakers are in charge of a wide portfolio of public policy interests. Last, incentives matter for legislators too. Returns on investments into highly specialist areas of the law are quite limited for political agents subject to an electoral constraint.[156]

With eyes on FRAND, there is an additional cost to legislative rulemaking. In economic terms, investments in the specification of a FRAND rule are sunk costs. The knowledge developed to specify a FRAND rule goes away at every electoral cycle or so, with the replacement of political personal. In light of the multiple use cases for FRAND rules as well as the dynamicity of the technology, the sunk costs of FRAND legislative rules are likely to deter lawmakers to ever enter the promulgation game. For example, the know-how developed in a legislative rule for 5G technology today will not be available in the next electoral cycle. Legislative assemblies do not learn as well as other institutions. Last, adaptation costs may be added to the equation. Assume the design of FRAND rules by lawmakers is erroneous as be either under- or over-inclusive. Legislative revision is like turning a supertanker around in front of a tsunami.

The evidence of very high promulgation costs in patent law is unquestionable. In the US, more than 27 bills were introduced at the federal level since 2013 to deal with aspects of "patent trolling."[157] None of these bills has been

these terms. They are to be further elaborated by the National Regulatory Authorities (NRAs), which can impose a series of obligations on operators with significant market power including direct price control measures).

155. *See e.g., Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Better Regulation: Joining forces to make better laws*, at 1-4, COM (2021) 219 final (April 29, 2021); European Commission Press Release IP/21/1901, The Commission, Better Regulation: Joining forces to make better EU laws and to prepare for the future (April 29, 2021) (The new "Better Regulation" approach set out in the EU for legislative rulemaking is likely to drive the informational costs upwards. Under this new approach, the Commission would systematically assess the economic, social and environmental impacts of policy actions and proposed legislation. It would also engage more thoroughly with stakeholders in public consultations and work closely with different committees, national authorities, social partners and other associations. A FRAND-related legislation would not escape the rule and would therefore need to undergo such assessment).

156. Overall, lawmakers will prefer to focus on attention grabbing topics. This can nonetheless be overcome in systems where lawmakers do not select the bills on which they must legislate, like in the EU where the European Commission has a monopoly to initiate (but not adopt) legislation.

157. Patent Progress, *Patent Progress's Guide to Federal Patent Reform Legislation*, https://www.patentprogress.org/patent-progress-legislation-guides/patent-progresss-guide-patent-reform-legislation/#EAPA [https://perma.cc/CGJ4-LA98].

enacted into law.[158] Clearly, there is a lack of agreement among stakeholders as to what constitutes optimal patent policy.[159] Moreover, even in the rare cases in which promulgation occurred, the costs have been substantial. For example, it took seven years for the America Invents Act ("AIA") – the last successful patent law bill turned into law in the US – to be enacted.

b. Enforcement costs with Uneven Playing Field

Compliance with legislative provisions should lead to low enforcement costs. If SEP owners who commit to license on FRAND terms know from the get go about the legal implications of a breach of their promise, there is no reason to believe they will not adapt their behavior to avoid litigation.

But expectations about business responses to law often break down against reality. Many factors prevent the legal system to reap enforcement benefits from less costly litigation as soon as promulgation expenses have been incurred. Adaptation costs and costs of obtaining information about the new rule arise. If we take our example of the AIA, its enactment also generated high implementation costs. It disrupted settled case law, created new opportunities for litigation and introduced new uncertainty for stakeholders. This led some authors to argue that it would have been better to leave the matter to courts in the first place as many ambiguities of the law have had to be resolved by judicial interpretation.[160]

Kaplow neglected advice costs on the ground that all firms invest in learning the content of the law regardless of their specification; and at any rate firms prefer to learn a rule over a standard. The point is valid. Yet, the discontinuity introduced by the promulgation of a rule adds a fixed cost to firms that did not exist before. Firms which serve a large amount of output will benefit from lower advice costs relative to smaller firms. In a FRAND context, firms involved in numerous licensing transactions (eg, developers) enjoy increasing returns compared to firms that take part in a smaller number of licensing transactions, for example (eg, implementers). Hence, rule promulgation with increasing returns to legal advice risks tilting the level playing field and might distort competition.

4. Courts

Is judicial rulemaking a cost-effective alternative? Courts incur mixed promulgation costs, compared to other institutions (a). Moreover, judicial rules do not limit enforcement costs as clearly as others (b).

158. Interestingly, the bills are also not heading in the same direction. Some focus on limiting opportunities for so-called patent trolls to engage in questionable behavior (such as bad faith or overly broad assertions). Others seek to (allegedly) strengthening the patent system, possibly assisting patent trolls.

159. Note though that State legislation addressing bad faith assertions have been more successful as two thirds of US states have some sort of law addressing this kind of behavior. *See* Qian Huang, Grace King, Tim Rawson, *Navigating the landscape of anti-trolling legislation*, INTELLECTUAL PROPERTY MAGAZINE, Jun. 2016 at 54.

160. Dan L. Burk, *Patent Reform in the United States: Lessons Learned*, 35 REGULATION 20, 25 (2013).

a. Mixed Promulgation Costs

The costs of judicial rulemaking are more informational than transactional. Courts do not transact with plaintiffs and defendants. There is no cost of agreement for a judge. In addition, the number of parties to a FRAND dispute will be limited. Of course, courts consider the effects of judicial decisions on future litigants. But again, there is no requirement to strike an agreement with them. In short, the transactional component of judicial rule promulgation is likely to be limited, compared to collective institutions like SSOs, or participative procedures by administrative agencies.

The informational costs of rule promulgation by courts are ambiguous. On the one hand, judges have substantial investigative powers. The informational asymmetry with industry participants can be partly reduced by adducing evidence through disclosure from the parties, and using their experts, lawyers, economists, and patent attorneys, to interpret it. The fact that judicial proceedings are evidence based is also an advantage. As is well known, the polarized policy discussion in relation to patent trolling had undermined successful patent reform. With this, judicial rules might avoid the pitfalls of the antagonized, loaded, and value-based arguments that are error prone in legislative rulemaking.

At the same time, generalist judges, and lay juries, might have a hard time make sense of the evidence. Standardization, patents, technology transfer, are highly technical issues. In addition, concerns like innovation, competitiveness, industrial policy, or national security policy come in the way of the rulemaking discussion. Rulemaking by courts involves the resolution of multiple tradeoffs.

b. Mitigated enforcement costs

Judge made rules lack replicability. The cases from in which they are developed are fact-specific. Litigants have incentives to argue that facts in the marginal case are different. Now, if the court finds the rule inapplicable, enforcement costs remain high.

But courts discretion to differentiate in the marginal case is not illimited. When lower courts "decide cases, the body of applicable legal rules—statutes, regulations, and prior precedents—constitute the relevant constraints on their decision making."[161] Dworkin argues that judges (and courts in general) are never entitled to exercise fullest discretion. There is always a way in which a judge may connect the case at issue with accepted legal standards. Dworkin calls this the *strong sense* of discretion.[162] And in a FRAND case, a judicial rule developed in an upper court case can effectively cabin lower courts' incentives to discretionary differentiation in the marginal case.

Other authors stress that standards of organizations, voluntary associations or communities, also limit judicial discretion.[163] Concretely, a court can enact a rule

161. Pauline T. Kim, *Lower Court Discretion*, 82 N.Y.U L. REV. 383, 409 (2007).

162. Joseph Raz, *Legal Principles and the Limits of Law*, 81 YALE. L.J. 823, 843 (1972) (referring to Dworkin, *supra* note 25, at 32-33).

163. *Id.* at 844-45 (This discretion allows judges to rely on "every reasons which is endorsed by part of the community for some purpose or other").

that points to SSO policies or industry practice as useful sources to infer the preferences of parties to a FRAND licensing dispute.[164] In turn, this addresses the problem of deference (and related costs) identified previously.[165] The combination of (clear) *ex ante* policy making by SSOs and *ex post* judicial discretion works towards reducing enforcement costs.

Huawei provides an illustration of this approach. The EU upper court instructed national courts to look at "*recognised commercial practices in the field*", to assess "good faith", and to rely on "objective factors" when considering the conduct of a SEP infringer.[166] The Court's ruling resonates as an indirect invitation to pay attention to SSO policies when wielding judicial discretion in the particular case. The *Huawei* judgment has however been criticized.[167] The FRAND rule would not be specific enough. And it would not bring the required degree of harmonization hoped by certain interests. The result is that divergences in interpretation at the national level do nothing to limit enforcement and advice costs.[168] And yet, the procedural rule developed by the CJEU presents sufficient elements to ensure that it can be reproduced by participants. This lowers the ATC of FRAND litigation.

5. Conclusions

Mantzari has made the point that when a comparative institutional analysis leads to a choice between potentially imperfect alternatives, the optimizing solution consists in selecting the least imperfect one.[169] In light of Kaplow's frequency hypothesis, courts appear to be the institutions least imperfect placed to design a FRAND rule.

164. Mathew Heim & Igor Nikolic, *A FRAND Regime for Dominant Digital Platforms*, 10 J. INTELL. PROP. INFO. TECH. & ELEC. COM. L. 38, 53 (2019); *Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions Digitising European Industry Reaping the full benefits of a Digital Single Market*, COM (2016) 180 final (April 19, 2016); *Communication from the Commission to the European Parliament, the Council, The European Economic and Social Committee and the Committee of the Regions ICT Standardisation Priorities for the Digital Single Market*, COM (2016) 176 final (April 19, 2016); *Communication from the Commission to the Institutions on Setting out the EU approach to Standard Essential Patents*, COM (2017) 712 final (Nov. 29, 2017).

165. Based on the circumstances of a specific case, there would only be one policy applicable. Courts would not have to explore a multitude of instruments in order to find the applicable guidelines.

166. Huawei v. ZTE, C-170/13, ECLI:EU:C:2015:477, ¶¶ 65 (July 16, 2015).

167. *See e.g.* Peter Picht, *The ECJ rules on standard-essential patents: thoughts and issues post-Huawei*, 37(9) EUR. COMP. L. REV., 365, 375 (2016). Miguel Rato, Mark English, *An Assessment of Injunctions, Patents, and Standards Following the Court of Justice's* Huawei/ZTE *Ruling*, 7(2) Journal of European Competition Law & Practice, 103 (2016).

168. *E.g.* Landesgericht Mannheim [LG] [Regional Court Mannheim], July 1, 2016, Case No. 7 O 209/16 (Ger.) (in a dispute between *Philips* (SEP holder) and *Archos* (implementer), the Regional Court of Mannheim, found that Philips did not satisfy the *Huawei* principles, while a district court in the Netherlands concluded, in parallel proceedings, that it was the implementer who was unwilling to license).

169. *See e.g.*, Despoina Mantzari, *Economic Evidence in Regulatory Disputes: Revisiting the Court – Regulatory Agency Relationship in the US and the UK*, 36 OXF. J. LEG. STUD. 565, 571 (2016).

TABLE 2: Costs Differentials of FRAND Rules broken down by Agency

Agency	Promulgation costs	Enforcement costs	Outcome
Private ordering - SSOs	• Low informational costs (expertise and industry participation) • Potentially high transactional costs (consensus, general internal governance and decision-making process, inapt to survive through time)	High (non-binding rules – unclear deference and risk of being bypassed, need to be compatible with overarching statutes)	Too much uncertainty of enforcement – mostly high costs
Administrative agencies	• Mixed informational costs (expertise but little information about industry) • Mixed transactional costs (unilateral decision but weak legitimacy)	Uncertain (higher deference than for SSOs but unclear as to which type of deference would apply)	Too much uncertainty and mixed costs
Legislator	• High informational costs (non-specialist, information asymmetry, time-constrained intervention and adaptation) • High transactional costs (lack of consensus, need to respect democratic process for legitimacy)	Potentially high (adaptation costs, risks of ambiguities in interpretation, role of advice costs)	Not clear if the frequency hypothesis justifies intervention. Mostly high costs and likely too expensive compared to other options
Judiciary	• Mixed informational costs (lack of expertise but investigative powers to obtain information from industry) • Low transactional costs (unilateral decision and limited parties involved)	Potentially high (lack of replicability) But can be mitigated (discretion, deference, evidence, *stare decisis/ rule of precedent*)	Currently least imperfect institution with low and mitigated costs

C. Rule Type

Rules are heterogeneous. Broadly, three types of rules exist: hybrid v pure rules (1) strong v weak rules (2) and, finally, procedural v distributional rules (3). The promulgation and enforcement costs of FRAND rules must be studied across rule types.

1. Hybrid v pure rules

The rules versus standard dichotomy represents two ends of a spectrum.[170] The 'ruleness' of a rule varies. Dworkin and Hart have shown that legal rules have "*open structure*" or "*furry edges.*" Standards can be found in many legal rules.[171] And legal standards often embed rules. In most legal systems, hybrids coexist with pure rules and standards.

In original form the concept of FRAND represents a pure standard (or three pure standards), not a hybrid. Now, the problem of a standard is to lack formal realizability.[172] The words employed in a standard are not semantically realizable as they require extensive interpretation.[173] This, in turn, corresponds to high enforcement costs.

One way to increase a standard formal realizability, and decrease enforcement costs, consists in hybridizing it with a rule. That approach has been followed with FRAND. In *Huawei*, for example, the CJEU has blended a procedural rule with a standard does. A FRAND outcome is determined by application of a procedural rule, even though the semantical meaning of FRAND (i.e. each word composing the acronym) remains left to a standard-approach. The legal command embedded in FRAND becomes *deductively* or *analytically* realizable.[174]

So, hybrid rules may alleviate some enforcement costs associated with a standard. In return, however, promulgation and advice costs are incurred. The net outcome in cost benefit terms is ambiguous.

2. Strong versus weak rules

Rules can be strong or weak. A strong rule is unconditional. For example, a strong rule says 'if infringement of a valid patent is found, then injunction shall proceed.' By contrast, a weak rule is conditional. For example, a weak rule says 'if infringement of a valid patent is found, then injunction shall proceed unless the infringer raises a valid equity argument.'

Weak rules that come with exceptions have lower promulgation costs than strong ones. It is easier to find agreement on rules that do not bite. By contrast, weak rules have higher enforcement costs than strong ones. It is easier to execute rules

170. Pauline T. Kim, *Lower Court Discretion*, 82 N.Y.U L. REV. 382, 416 (2007).

171. *See* Dworkin, *supra* note 25, at 22 (referring to the work of Hart and Austin).

172. *See* Radin, *supra* note 133, at 795.

173. To be concrete, an automated machine with gigantic computational capabilities could not replace a judge.

174. *See* Radin, *supra* note 133, at 795 (as the words included in the contraction FRAND may vary along a continuum which does ***not*** start from completely indeterminate to end at completely determinate, but is, overall, limited by the procedural rule).

without caveats. As Ehrlich and Posner write "some benefits of governance by rules are sacrificed by recognizing exceptions based on implicit use of an overriding standard."[175]

There are many examples of strong and weak FRAND rules. The IEEE revised policy exemplifies a strong FRAND rule. It prohibits patent holders from seeking and obtaining injunctive relief and prescribes the Smallest Salable Patent Practicing Unit (SSPPU) as the method for FRAND valuation. It can be contrasted with the weak FRAND rule developed in the US courts. According to the doctrine, there is not one way to calculate FRAND royalties. And there is no per se rule barring injunctive relief in a FRAND case.

3. Procedural versus distributional rules

Rules can control outcomes or seek to facilitate private ordering. The later, called formalities, imply that the law has "no preference as between alternative private courses of action."[176] The literature provides limited insights on the tradeoffs between both.[177]

In a FRAND context, an outcome-oriented rule affects the distribution of profits between a SEP owner and an implementer so as to allocate a "*reasonable*" share of economic surplus to both parties. The rule is distributional. An extreme example is a rule setting a maximum royalty rate. But the category covers generally all rules that specify technology valuation principles (for example SSPPU) pricing principles and indirect price caps).[178]

By contrast, a formality minded FRAND rule imposes procedural constraints on a SEP owner and implementer on the conjecture that a range of "*reasonable*" outcomes will follow. The rule is procedural. An example includes an obligation on SEP owners to send a notice of alert to an infringing implementer prior to seeking an injunction.

The promulgation, advice and enforcement costs of procedural and distributional FRAND rules differ. The promulgation and enforcement costs of distributional rules are likely higher than those of procedural rules. Reaching agreement over the distribution of profit is likely to consume vast resources.

Distributional rules present similarities, in terms of costs, with Hart's rules of obligation.[179] In *The Concept of Law* Hart defines rules of obligation as substantive primary rules with highest authority which establish *ex ante* the behavior that a community and its members must adopt.[180] The enactment of a rule of obligation requires extreme investment from lawmakers, and therefore high

175. Ehrlich and Posner, *supra* note 26, at 268.

176. Kennedy, *supra* note 27, at 1691.

177. *See* Jason S. Johnston, *Bargaining Under Rules Versus Standards*, 11(2) J. L., ECON. & ORG. 256, 259 (1995) (Research on bargaining suggests that standards are better for distributional, or outcome-oriented, issues).

178. *See* Nicolas Petit, *The Smallest Salable Patent-Practicing Unit ('SSPPU') Experiment, General Purpose Technologies and the Coase Theorem* (February 18, 2016), http://ssrn.com/abstract=2734245 [https://perma.cc/QAM6-JEHC].

179. *See generally* HERBERT L. A. HART, THE CONCEPT OF LAW (P. Craig ed., Oxford University Press 3rd ed. 2012).

180. *Id.* p 95.

promulgation costs. In a FRAND context, a rule setting FRAND royalty or controlling licensing levels (such as the one adopted by IEEE-SA), corresponds to a rule of obligation. It is determined *ex ante* by a regulator (be it a legislator or an SSOs) and imposes clear obligations on members of a community.

Similarly, unless the distributional rule sets the amount of royalties directly (which is unrealistic) the cost of enforcing a rule that prescribes a valuation method is likely to be equal or higher to the cost of following a procedural rule.[181] This is because countless calibration and methodological discussions will have to be settled, sometimes in courts.

The point is this. Distributional rules do not necessarily make FRAND cases thinner, or less costly. For these reasons, the enforcement cost savings of a FRAND distributional rule over the initial FRAND distributional standard is unclear (because it saves no enforcement costs and generates vast promulgation costs).

Conclusion

This paper finds that while FRAND rules are not less desirable than standards at the abstract level, not any rule is more optimal than a FRAND standard. In particular, FRAND rules from private ordering institutions like SSOs are costly to promulgate and do not determinatively limit enforcement costs. In addition, FRAND distributional rules are more costly than procedural ones, regardless of the organ adopting the rule in question. Those simple results call into question the wisdom of many policy initiatives in the FRAND area. Administrative agencies calls to SSOs to specify *ex ante* the distributional content of FRAND seem particularly ill advised.

This paper's main limitation is to be under-inclusive. There is room for the consideration of other costs related to the adoption of a FRAND rule or standard. Hence, this paper does pretend to speak the last word on the optimal design of FRAND. However, this paper hopes to have decreased the costs of adoption of a method towards elucidating the meaning of FRAND.

* * *

181. Hart opposes rules of obligation to rules of recognition. Procedural rules are closer to simple rules of recognition which produce legal effects as soon as a few and limited steps are resolved. In the FRAND context, the proposition of CEN-CENELEC in its position paper on FRAND, suggesting deferring to the outcome of licensing negotiations, falls within the scope of a rule of recognition. The same holds for the procedural rule adopted by the CJEU in *Huawei* as well as the optional rule envisaged by ETSI regarding the determination of licensing terms. The formation of the licensing contract includes negotiations which are accepted by the members of a community in order to define the scope and meaning of FRAND.