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***Abusive Pricing in an IP Licensing Context:
An EC Competition Law Analysis***

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I. Introduction

In the last two decades, the reliance upon “licensing” strategies as a source of revenue for intellectual property (“IP”) rights holders has seen a dramatic increase.¹ Put simply, in return for adequate remuneration (typically a royalty, but there may be other forms of consideration²), innovators (licensors) grant to other firms (licensees) the right to use their proprietary technology to manufacture products for sale in downstream markets. IP licensing strategies are not only pursued by organizations without manufacturing capabilities (e.g., university research centres).³ IP holders active in downstream product markets (hereinafter, “vertically integrated” firms) may license their technologies to reap additional profits from their research and development (“R&D”) expenditures, but they may also do so to obtain access to other firms’ technologies through cross-licensing agreements.

Licensing agreements typically benefit both the licensor and the licensee. The licensee gains access to new technologies, which can be used to improve its manufacturing operations or which the licensee can embed in its own products to increase their functionalities. The licensor accrues revenues from his initial R&D expenditures that can be invested in the development of new technologies, which will in turn lead to additional revenues, hence creating a virtuous circle of innovation. Licensing agreements are generally heavily negotiated between licensors and licensees, which in the vast majority of the cases reach mutually satisfactory agreements.

Yet tensions may arise between licensors and licensees over the terms of their IP licensing deals. The diverging incentives of licensors (eager to obtain a fair level of compensation for the investments made in developing their IP) and licensees (eager to

¹ See Ashshih Arora, Andrea Fosfuri and Alfonso Gambardella, *Markets for Technology: Economics of Innovation and Corporate Strategy*, MIT Press, 2001.

² Licensees can also pay an upfront fee, or they can cross-license some of their rights in exchange for the licensors’ rights, etc.

³ See Alfonso Gambardella, *Science and Innovation*, Cambridge University Press, 1995.

minimize the cost of acquiring proprietary technologies) may generate disputes over royalty levels and other forms of consideration.⁴ Such disputes are particularly likely to arise when licensing agreements have the potential to be worth hundreds of millions of euros and small variations in terms and conditions can be financially significant for both parties. Potential licensees may also insist on obtaining a licence on terms that are identical, or at least equivalent, to those obtained by licensees with which they compete. At the same time, licensors may resist such requests insofar as differing licensing terms are justified by the particular circumstances of each specific agreement.

Additional tensions may arise when the IP in question is essential to a standard. Some have argued that once a proprietary technology has become part of a standard, its owners will be able to extract royalties in excess of those they could have charged before the adoption of such standard (the so-called “hold up” theory).⁵ Although this theory has clear limitations (as will be seen), it has contributed to the belief that royalty rates charged by IP holders are too high. Another claim that has been made is that in circumstances where a standard comprises essential IP held by numerous patent holders, the aggregation of the rates charged by such holders (even if individually reasonable) may lead to a royalty burden of a level such that the standard will be too costly to implement (the so-called “royalty stacking” theory).⁶ The proponents of such theories argue that some form of control should be placed on the royalties that can be charged by essential patent holders.⁷

While differences of views between licensors and licensees are generally ironed out through negotiations, there will be situations where licensees may be tempted to rely on competition rules to seek redress against what they perceive to be unfair licensing terms. Against this background, this paper explores the extent to which Article 82(a) and 82(c) of the EC Treaty – which respectively prohibit as abusive for dominant firms “directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions” to their customers, and “applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage” – can be relied on by licensees unhappy with the deals they have obtained from licensors. These issues are particularly important at a time when economic growth is increasingly dependent on innovation.

⁴ See Damien Geradin, “Standardization and Technological Innovation: Some Reflections on Ex-ante Licensing, FRAND, and the Proper Means to Reward Innovators”, 29(4) *World Competition* 511 (2006).

⁵ See Mark Lemley and Carl Shapiro, “Patent Hold Up and Royalty Stacking”, *Stanford Law and Economics Olin Working Paper No. 324* (July 2006), available at: <http://ssrn.com/abstract=923468>.

⁶ *Ibid.* But see Damien Geradin, Anne Layne-Farrar and Jorge Padilla, “Royalty Stacking In High Tech Industries: Separating Myth from Reality”, available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=949599.

⁷ Most of these proposals seek to reduce the bargaining power of essential patent holders. But see Damien Geradin, Anne Layne-Farrar and Jorge Padilla, “The Ex Ante Auction Model for the Control of Market Power in Standard Setting Organizations,” available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=979393.

This paper is divided into five parts. Part II discusses the specific challenges raised by market definition and the assessment of dominance in high-technology markets with a specific focus on technology licensing. Part III discusses the application of Article 82(a) to licensing agreements. It explains the significant conceptual and practical difficulties of applying this provision of the Treaty in the field of technology licensing and argues that competition authorities should refrain from seeking to control prices or rates in dynamic industries. Part IV explores the issue of price/rate discrimination in IP licensing agreements. It argues that while non-vertically integrated licensors have no incentives to discriminate against their licensees, vertically-integrated firms have strong incentives to offer more favourable licensing terms to their downstream operations than they offer to other downstream firms with which they compete. The enforcement of Article 82 EC in this field, it is argued, should therefore focus on preventing vertically-integrated firms from raising their downstream rivals' costs through discriminatory licensing fees. Part V contains a short conclusion.

II. Market Definition and Dominance in Technology Markets

Prices will only be examined under Article 82 where they are imposed by dominant firms. Thus, the definition of one or several product and geographic market(s) and the determination of the presence of dominance on such market(s) is the first necessary step of any enquiry into abusive pricing. The developments which follow show that in high technology industries the assessment of market definition and dominance raises a number of complex issues which need to be considered carefully.

A. Market definition

In the context of technology covered by IPRs incorporated into a standard, the primary relevant market consists of the market for the licensed technology and its substitutes. Such substitutes comprise other technologies which by reason of their characteristics, price (i.e., royalty rate) and intended use are regarded by licensees as interchangeable with or substitutable for the licensed technology. However, the key to ascertaining whether such technologies are substitutable for the licensed technology is to examine whether licensees could switch to them in response to a small but significant, permanent increase in the royalties charged by the IPR owner for its standardized technology.⁸ If licensees of the standardised technology can switch to alternative technologies, patented or otherwise, then these alternative technologies form part of the relevant product market.

Although this conceptual framework does not appear to differ significantly from that employed to define more traditional product markets, market definition in technology

⁸ The conceptual framework for defining such technology markets is set out, *inter alia*, in the European Commission's "Guidelines on the application of Article 81 of the EC Treaty to Technology Transfer Agreements" ("Technology Transfer Guidelines"), 2004 OJ C101/2, at p. 22.

markets is a more complex undertaking. The intricacy of the task is compounded when, as is often the case, the technology at issue forms part of a standard. A standard can be defined as a set of technical specifications which seeks to provide a common design for a product or process.⁹ The welfare benefits inherent to standardization are obvious. Standards increase consumer choice and convenience, and reduce costs by allowing complementary or component products from different manufacturers to be combined or used together.¹⁰ A variety of standards have been defined in fields as diverse as communications technology, computer manufacturing or the automotive industry, and these standards are constantly being improved by a large number of standard-setting organizations (hereinafter, “SSOs”).¹¹

The first element that needs to be considered when attempting to define relevant markets for standardized technology is the fact that, in practice, the implementers of a standard generally take a licence covering a company’s entire portfolio of essential IPRs for a given standard that is needed for the products they intend to manufacture and sell. An implementer of a standard would not typically seek a licence for an individual essential IPR on a stand-alone basis unless that particular IPR is the only one needed for the implementer’s specific product. Second, in many circumstances multiple firms hold essential IPRs to a given standard, each therefore being a complementary input for those wishing to manufacture and sell standard-compliant products. Companies wishing to practice the standard must therefore obtain licences for those essential IPRs from all of these firms. As the IPRs of these companies will typically cover different aspects of the standard, such IPRs are complements, not substitutes. The existence of non-substitutable complements obviously has profound implications for market definition. Third, as will be seen below, holders of essential IPRs contained in a standard are subject to a number of vertical, horizontal and dynamic competitive constraints with substantial implications both for market definition and for the assessment of dominance. Moreover, these constraints will differ significantly according to the role played by the IPR owner in the standardization process, i.e., depending on whether the IPR owner is a vertically-integrated firm active in the product market or a pure licensor which does not supply the end-product.

The identification of the vertical competitive constraint resulting from the ability of final consumers to switch between devices using different access technologies is fundamental to market definition in the context of technology licensing. In other words, the existence of a

⁹ See Herbert Hovenkamp, Mark Janis and Mark Lemley, *IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law*, Aspen Publishing (2003-04 Supplement) at § 35.1.

¹⁰ See Amy Marasco, “Standards-Setting Practices: Competition, Innovation and Consumer Welfare”, testimony before the Federal Trade Commission and Department of Justice, available at: <http://www.ftc.gov/opp/intellect/020418marasco.pdf>, p. 3 (“Standards do everything from solving issues of product compatibility to addressing consumer safety and health concerns. Standards also allow for the systemic elimination of non-value added product differences (thereby increasing a user’s ability to compare competing products), provide for interoperability, improve quality, reduce costs and often simplify product development. They also are a fundamental building block for international trade.”).

¹¹ See Mark Lemley, “Intellectual Property Rights and Standard-Setting Organizations”, 90 *California Law Review* 1889 (2002).

downstream market for the *product* incorporating the standardized technology is paramount to any appropriate definition of the relevant upstream *technology* market. The potential for demand side substitution by consumers of the final product is thus yet another element with significant implications for market definition.

If a hypothetical monopolist licensing essential IPRs raises the price of those IPRs, i.e. the royalty, at least some of the increase in costs is likely to be passed on by the manufacturer to final consumers (assuming a competitive market) who could switch to products using alternative technologies.¹² If there are sufficiently close substitute products, end-users will switch in response to an increase in prices, making the initial increase in royalties unprofitable for the IPR owner. The important role of downstream competition in constraining upstream market power in technology markets is well established.¹³ Furthermore, prices for the final product may be constrained even if alternative products are attractive to some but not all customers of the hypothetical monopolist. The European Commission's Discussion Paper on Article 82 makes it clear that it is not necessary for all customers to regard the products as substitutable for them to belong to the same product market. What matters is that enough marginal customers would switch to alternatives if the price of end-products were to increase by a small but significant amount, so as to make the price increase unprofitable.¹⁴ These vertical constraints must be thoroughly examined in order for the relevant market(s) to be correctly defined.

B. Dominance in Technology Markets

Pursuant to the legal standard established by the Court of Justice ("ECJ"), dominance arises where a firm has the power to behave to an "appreciable extent independently of its competitors, its customers and ultimately of the consumers" allowing it to "prevent effective competition being maintained on the relevant market".¹⁵ The identification of the competitive pressures to which a firm is subject is thus crucial for the assessment of the existence of a dominant position. Where firms face significant competitive constraints they cannot behave independently of their customers and therefore cannot be deemed to enjoy a dominant position. This holds true whether such firms have any competitors in the market for the goods or services provided to such customers or not.

¹² Economic theory and empirical analysis suggest that there is generally a pass-through of costs to at least some extent.

¹³ The Commission's Technology Transfer Guidelines recognize this point, stating: "If the downstream product market is competitive, competition at this level may effectively constrain the licensor. An increase in royalties upstream affects the costs of the licensee, making him less competitive, causing him to lose sales." See *supra* note 8 at para. 23. See also Daniel Swanson and William Baumol, "Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power", 73 *Antitrust Law Journal* 1 (2005), at note 17 ("There may be no market power in the technology market even if the alternative technology set is small if there is vigorous rivalry from substitute goods in the market for the final product that makes use of the technology").

¹⁴ *DG Competition discussion paper on the application of Article 82 of the Treaty to exclusionary abuses* (Dec. 2005), <http://ec.europa.eu/comm/competition/antitrust/art82/discpaper2005.pdf>, at para. 18.

¹⁵ See Case 85/76, *Hoffmann-La Roche & Co. AG v Commission* [1979] ECR 461.

While it is generally recognized that the owner of an IPR is not automatically placed in a dominant position, it has been argued that holders of IPRs that are essential to practice a standard automatically enjoy significant market power.¹⁶ The claim is that once a given technology becomes part of a standard, competition between technologies for the essential parts of that standard ends. No longer constrained by such competition, each owner of an IPR that is essential to the standard would *ipso facto* enjoy market power akin to dominance in the market(s) for the licensing of those IPRs. It has been argued that this effect would be compounded by the “hold up” of potential licensees which may have made substantial investments for its implementation and are locked into the standardized technology. As will be seen below, these claims cannot be sustained because they ignore the different horizontal, vertical and dynamic competitive constraints to which owners of IPRs essential to a standard are subjected and which preclude an automatic finding of dominance.

1. Vertical Constraints Stemming from Competition between Rival Standards and Non-standardized Substitute Products

The adoption of a standard by an SSO may bring an end to effective competition between rival technologies for inclusion in that specific iteration of the standard. However, it will not affect competition *between rival standards*, in the guise of either downstream competition between substitutable end-products compliant with different standards or competition between standards at the upstream licensing level. As seen above, competitive constraints arising at either the upstream or downstream level will prevent an owner of essential IPRs from holding a dominant position in the technology licensing market(s). If licensees of the standardized technology can switch to alternative technologies, covered by IPRs or otherwise, the IPR owner will not be able to exercise monopoly power because it would lose sales if it tried to increase price. Similarly, if end-customers can easily switch to substitute products that do not use the licensed technology, such competition between end-products will represent a significant competitive constraint on the owner of an IPR that is essential to a standard. This will hold true regardless of whether the substitute products comply with any given standard.

2. Horizontal Constraints Stemming from the Complementary Nature of IPR Incorporated in a Standard

As seen above, standards usually comprise complementary essential IPRs owned by numerous firms. In order to practice the standard, implementers must obtain licences from all such owners of complementary IPRs. If other complementary IPR owners charge high royalty rates, a given firm will not be able unilaterally to set a high royalty rate for its IPR. This will be the case even if the company in question holds a monopoly over a given

¹⁶ See Marcus Glader and Sune Chabert Larsen, “Article 82: Excessive pricing – An outline of the legal principles relating to excessive pricing and their future application in the field of IP rights and industry standards”, *Competition Law Insight*, 4 July 2005, p.3. But see Damien Geradin and Miguel Rato, “Excessive prices: In reply”, *Competition Law Insight*, 10 October 2006.

technology. When individually setting their prices, owners of essential IPR will inherently take into account prices set by other owners of complementary IPRs because the market – i.e., prospective licensees – will only bear a certain overall price level. Owners of IPRs essential to standard are thus *horizontally* price-constrained and this absence of pricing independence will preclude a finding of dominance under Article 82.

3. *Dynamic Constraints*

Owners of IPRs essential to a standard are also constrained in their ability to price independently by the dynamic nature of standard-setting. As noted above, competition between members of SSOs usually takes place not only before those SSOs adopt a standard but also afterwards, i.e., for the inclusion of new releases and next generation technologies. If a firm's technology is included in a standard, that firm will face constraints when pricing any associated IPRs because it will continue to depend on the SSO for its position as the standard evolves. The dynamic and evolving nature of standards gives participants in SSOs a number of opportunities to "punish" companies that have previously set what are considered to be excessive royalties. SSO members may be able to choose not to include a company's contributions in evolutions of the standard.¹⁷ Moreover, SSO members may be able to choose not to include a company's contributions in future generations of the standard (or in other unrelated standards).

4. *The Role of Dynamic Competition*

The final element which must be addressed when assessing dominance in the standard-setting context is not specific to standardization but appears inextricably linked to it insofar as technology standards and licensing occupy a preponderant place in dynamically competitive markets such as the ICT sector. These industries are characterized by dynamic competition for the market whereby drastic innovation makes market leadership highly contestable.¹⁸ By contrast, in other industries, competition takes place primarily through traditional price competition and perhaps also via incremental innovations.¹⁹

¹⁷ See David Teece and Edward Sherry, "Standards Setting and Antitrust", 87 *Minnesota Law Review* 1913 (2003): "[I]n many industries in which standards play an important role, the fast pace of technological change drives the continual redesign and reengineering of products. For example, the product life cycle in the semiconductor industry is reported to be as low as ten months. Therefore, even if there may be some 'lock-in' of earlier designs, once the existence of the patent is disclosed, the SSO has the opportunity to revise the standards, and manufacturers have the opportunity to redesign their products to avoid incorporating the patented features. In other words, the extent of 'lock-in' may be limited by the pace of technological change."

¹⁸ See David S. Evans and Richard Schmalensee, "Some Economic Aspects of Antitrust Analysis in Dynamically Competitive Industries," in Josh Lerner and Scott Stern, eds., *Innovation Policy and the Economy*, vol. 2, MIT Press, 2002, pp. 1-49.

¹⁹ For a detailed analysis of the competition policy implications stemming from dynamically competitive industries, see Christian Ahlborn, Vincenzo Denicolò, Damien Geradin, and Jorge Padilla, "DG Comp's Discussion Paper on Article 82: Implications of the Proposed Framework and Antitrust Rules for Dynamically Competitive Industries", 31 March 2006, available from the Commission's website at: <http://ec.europa.eu/comm/competition/antitrust/others/057.pdf>.

Dynamic competition consists of a series of races for market dominance. Firms do not compete by slightly undercutting each other but engage instead in what economist Joseph Schumpeter described as a “perennial gale of creative destruction” that “strikes not at the margins of the profits of the existing firms but at their foundations and their very lives”.²⁰ In these industries, competition takes place *for* the market rather than *in* the market. Firms take part in a race for innovation, striving to introduce new and superior products that will win the market and achieve massive transfers of market shares. In other words, competition comes not from readily available substitutes but from new, innovative products not yet present in the marketplace. Once a market is won, the ensuing dominance will afford substantial benefits, but it will be fragile and temporary. It can only be maintained if the dominant firm continues to innovate, as the initial race is succeeded by a new wave of investment by rival firms to displace the leading technology with something superior.

The implications of such dynamic competition for the assessment of dominance must be carefully considered. The competitive constraints faced by any incumbent stem not only from existing competitors but also from significant forces outside the market. The underlying analysis should thus be adapted to reflect the special characteristics of these industries. Given their fleeting nature, market shares should not be blindly used as relevant indicators of market power in those industries, and supply-side constraints should be carefully considered when dominance is assessed. A firm which *prima facie* appears to enjoy a dominant position could be found, upon careful consideration, not to possess any significant market power.

III. The application of Article 82(a) EC to licensing agreements

It is only when a licensor has been found to be dominant on one or several relevant market(s) that the question may arise as to whether the royalties charged to its licensees are abusive. Article 82(a) prohibits dominant firms from imposing “unfair purchase or selling prices or other unfair trading conditions”.²¹ While this provision is generally invoked as a tool to prevent excessive pricing, its reference to “trading conditions” suggests that it can also be used to prevent the imposition of unfair terms and conditions by dominant firms.²² This observation is important in a licensing context since, as noted above, monetary payments (royalties) are generally not the only form of consideration a licensor may seek to obtain in return to granting access to its proprietary technology. However, this paper will focus on the issue of excessive royalties, leaving aside issues surrounding the imposition by dominant firms of unfair trading conditions.

While there is no doubt that DG Competition, the national competition authorities and the courts *can* prohibit excessive royalties under Article 82(a), this section addresses the issue

²⁰ See Joseph Schumpeter, *Capitalism, Socialism and Democracy*, Harper Collins Publishers 1942/1984, p. 84.

²¹ On excessive pricing, see generally Robert O’Donoghue and Jorge Padilla, *The Law and Economics of Article 82 EC*, Hart Publishing, 2006, Chapter 12.

²² See, e.g., Case T-83/91, *Tetra Pak International SA v Commission* [1994] ECR II-755.

of whether competition authorities *should* make use of Article 82(a) to place limits on the level of royalties charged by a dominant licensor to one or several licensees.²³ To date, no decision of the Commission or judgment of the Community Courts has formally condemned a dominant firm for charging excessive royalties for a patent licence.²⁴ However, this issue has become relevant due to the growing importance of IP licensing agreements in a knowledge economy and the presence of a highly publicized dispute over royalty rates in the mobile telephony sector.²⁵ Section C questions whether the analysis carried out in Sections A and B should be different when proprietary technologies have become part of a standard and concludes that it should not. Finally, Section D examines which markets should be candidates for intervention to curb prices. It argues that high technology markets should not be subject to such intervention.

This part is divided into four sections. Section A shows that claims of excessive royalties are likely to negatively impact firms' incentives to innovate. Section B underlines the fact that such claims also give rise to insuperable measurement problems.

A. Claims of Excessive Royalty Pricing and Firms' Incentives to Innovate

Economic theory suggests that price regulation, including placing a cap on the royalties that can be charged by a licensor, will negatively impact a firm's incentives to innovate.²⁶ In high-tech industries, most R&D investments fail to generate marketable results, and incentives to innovate are directly linked to the prospect of generating significant profits. Hence, interventions aimed at curbing profits affect incentives to invest. This is why the US Supreme Court stated that the ability for firms to charge supracompetitive prices is the "very essence" of the free market system,²⁷ as it is the prospect of reaping large rewards that induces market actors to take risks, invest, innovate, and ultimately contribute to economic growth.²⁸

²³ See also David Evans and Jorge Padilla, "Excessive Prices: Using Economics to Define Administrable Legal Rules", 1(1) *Journal of Competition Law and Economics* 97, 119-120 (2005). The authors suggest that Article 82 should not be used to sanction excessive prices on innovation markets. The Commission has on many occasions expressed its reluctance to apply Article 82 to excessive pricing claims. See Commission, *Vth Annual Report on Competition Policy*, 1975, points 3 and 76; Commission, *XXIVth Annual Report on Competition Policy*, 1994, point 207. Note that, since 2000, there has been only one decision in which the Commission has sanctioned a firm for excessive prices under Article 82. See Commission decision of 25 July 2001, COMP/C-1/36.915 — *Deutsche Post AG*, OJ L331/40. For comment, see Peter Oliver, "The Concept of 'Abuse' of a Dominant Position under Article 82 EC: Recent Developments in Relation to Pricing", 1(2) *European Competition Journal* 179 (2005).

²⁴ As far as EC competition law is concerned, most IP licensing issues have arisen in the context of technology transfer agreements, which may fall within Article 81 EC. See Commission Regulation 772/2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements, 2004 OJ L123/11.

²⁵ See "Nokia hits back in Qualcomm dispute", *Financial Times* (24 May 2007).

²⁶ See Evans and Padilla, *supra* note 23.

²⁷ See Steven Anderman, *EC Competition Law and Intellectual Property Rights: The Regulation of Innovation*, Oxford University Press, 1998, at p.224.

²⁸ See *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 405 (2004): "[T]he mere position of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful, it is an important element of the free market system. The opportunity to charge monopoly prices – at least for a short period – is what attracts 'business acumen' in the first place; it induces risk taking that produces

Because it can affect the return on innovation and investments, competition policy may thus have a significant impact on the development of dynamically competitive industries in Europe.²⁹ A stringent policy regarding excessive prices will have effects similar to the introduction of an upper limit on profits. Given that profits are *ex ante* uncertain, a firm would only be willing to invest if the expected return on its investment exceeds the cost of capital by a significant measure. The introduction of an upper bound to prices and hence to profits may thus cause a reduction in investment and a loss of dynamic competition. In addition, it could disproportionately alter firms' ability to maintain R&D expenditures, as the borrowing capacity of a firm is generally proportional to its current earnings.

Furthermore, placing a cap on dominant firms' royalties is likely to disrupt potential competitors' incentives to enter the market in question.³⁰ The opportunity to charge supracompetitive prices signals to possible new entrants and investors that R&D expenditures will generate profits in the future.³¹ Imposing tight controls on the remuneration of innovation thus could prevent or at least significantly discourage market entry by new firms, and could hurt dynamic competition.

On the other hand, it could be argued that, by virtue of "path dependence" effects, dominant firms are at any rate compelled to innovate in order to maintain their market position in the long run.³² On this view, the negative effects on firms' incentives stemming from any such stringent application of Article 82(a) to royalty schemes could therefore be limited. However, this argument fails to take account of the fact that placing a cap on royalties may induce firms active in dynamic industries to watch and wait to see whether R&D investments made by other firms are successful and then seek to obtain access to these technologies at a controlled rate. As pointed out by Sidak, while the traditional view in microeconomic theory is that one should invest in any project that has a positive net present value of cash flows, real option theory shows that it may in fact be better to wait until some uncertainty about viability (of a newly developed technology) is resolved and cost reduction

innovation and economic growth" (emphasis added).

²⁹ See Ahlborn, Denicolò, Geradin and Padilla, *supra* note 19.

³⁰ This argument is based on the conceptual framework provided by the Chicago school in the 1960s. The charging of high prices (and the achievement of substantial profits) at one point in time (short term) stimulates, in the following periods (mid-term) the entry of new firms into the market, and trigger a decline of the market price. The quantities supplied increase and the market price falls. In turn, the substantial profits enjoyed disappear. In fact, a high price may well be evidence of the lack of competition *in* the market, but it will trigger competition *for* the market. See Frank Easterbrook, "The Limits of Antitrust", 63 *Texas Law Review* 1, 2 (1984); Harold Demsetz, "Barriers to Entry", 72 *American Economic Review* 47 (1982). For a useful summary, see Richard Posner, *Antitrust Law: An Economic Perspective*, 2nd ed., University of Chicago Press, 2001, pp. 13-14.

³¹ See Feng Gu and Baruch Lev, "Markets in Intangibles: Patent Licensing" in *Intangible Assets, Intellectual and Human Capital*, University of Ottawa, 2003.

³² For a viewpoint, see Jonathan Baker, "Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation", 8 February 2007 at p. 6, available at <http://ssrn.com>.

can be achieved.³³ The granting of a free option on other firms' R&D would reduce incentives to invest and decrease the level of innovation.

Conversely, placing a cap on royalties may induce innovators to exploit their IP differently by, for instance, keeping their innovation for themselves as trade secrets and embedding it exclusively in their own products. The intrusion of competition law into royalty pricing could thus modify the terms of the tradeoff between producing and licensing and hence the choice made by innovators when deciding how to market their technology.³⁴ Such choices should be driven by market factors rather than price controls. Moreover, such a reaction by licensors would have an effect opposite to the one sought by those calling for limits to be placed on royalties – allegedly to ensure wider technology transfer – since keeping technologies as trade secrets ensures that their use by third parties is prevented.

More importantly, the imposition of caps on the remuneration of innovation would disproportionately affect firms without downstream operations for which royalties represent the main or only source of revenues. By interfering with the ability of firms to freely determine their royalties, competition authorities or courts could thus unwittingly contribute to eliminating firms that have legitimately opted for a licensing business model. Unlike firms operating under traditional models of vertical integration, the revenues and profits of licensing firms are not generated by the sale of products embedding new technologies, but by the licensing against royalties of such new technologies to other firms that are better able to incorporate those technologies into products.

Such an undesirable outcome would deprive society of some of its most innovative companies. It would either result in their elimination or force them to vertically integrate despite the fact that their comparative strength may not reside in manufacturing. Innovation and prices would be affected and consumer welfare would be impaired by such inefficient vertical integration.

B. Claims of Excessive Royalties and Measurement Issues

The case law of the ECJ and of the Court of First Instance ("CFI") provides some degree of guidance as to the principles applicable to measure whether a price is (or is not) excessive within the meaning of Article 82 (point 1 below). However, the principles established by the Community Courts are poorly tailored to the particular context of IP licensing (point 2).

³³ See J. Gregory Sidak, "Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro", available at <http://ssrn.com>.

³⁴ The decision to license rests on a tradeoff between two effects: the "revenue" effect and the "profit dissipation" effect. The revenue effect is the value of the flows of rents accruing to the innovator. The profit dissipation effect is the loss of revenues resulting from the activity of competing licensees on the downstream market when there is horizontal licensing (i.e., licensing between competitors). When prices are regulated on the basis of Article 82, the revenue effect diminishes, and the profit dissipation stays the same. On this distinction, see Arora, Fosfuri and Gambardella, *supra* note 1. Vertical licensing means licensing to non-rivals.

1. *Standards set by the ECJ's case law for assessing whether the price charged by a dominant firm is excessive*

The criteria for assessing whether a price is “unfair” within the meaning of Article 82 were established in some of the first competition cases brought before the ECJ. In its seminal *United Brands* ruling, the Court held that a price is deemed “excessive” when “it has no reasonable relation to the economic value of the product supplied”.³⁵ Importantly, the ECJ adopted the following two-step approach for determining whether a price is excessive. Specifically, one would have to:

- (i) “[Examine w]hether the difference between the costs actually incurred and the price actually charged is excessive”; and
- (ii) “[I]f the answer to this question is in the affirmative, [determine] whether a price has been imposed which is either unfair in itself or when compared to competing products”.³⁶

In other words, a comparison between price and cost is first carried out to reveal the profit margin achieved by the dominant firm. If that profit margin is found to be “excessive”, the dominant firm’s pricing policy needs to be further analyzed, in order to determine whether the price is “unfair”. The Court’s judgment provided no further guidance on the application of this test. In particular, it did not clarify the basis on which to determine whether a price-cost difference is excessive. Similarly, it does not explain the notion of “unfair” when applying the second branch of the test. This is problematic since terms such as “excessive” and “unfair” are inherently vague and devoid of meaning in the absence of a precise economic test to determine whether a given price falls under their scope.³⁷

Unfortunately, subsequent cases referred to the ECJ only led to sporadic pronouncements on the methods applicable for establishing an excessive price within the meaning of Article 82. The Court even seemed to relinquish the *United Brands* two-stage method in favour of a more “integrated” benchmarking test. In a first strand of cases, the Court compared the pricing policy of a dominant firm with the prices of equivalent firms active on neighbouring geographic markets.³⁸ In a second strand, the Court undertook to

³⁵ Case 27/76, *United Brands Company and United Brands Continentaal BV v Commission* [1978] ECR 207, at para. 250. See also para. 251: “This excess could, *inter alia*, be determined objectively if it were possible for it to be calculated by making a comparison between the selling price of the product in question and its cost of production, which would disclose the amount of the profit margin”.

³⁶ *Ibid.* at para. 252.

³⁷ In addition, the Court introduced further complexity by indicating in *obiter dicta* that other methods could be devised to determine whether a price is unfair. *Id.* at para. 253. National courts and competition authorities could thus approach excessive price allegations through a variety of methods not necessarily mentioned by the Court in *United Brands*.

³⁸ See Case 110/88, *Lucazeau and others v SACEM and others* [1989] ECR 2811, para. 25: “When an undertaking holding a dominant position imposes scales of fees for its services which are appreciably higher

make comparisons between the prices charged by the same dominant firm (i) to different customers and (ii) over time.³⁹

It has thus been difficult to find consistency in the standards promoted by the ECJ.⁴⁰ The most recent decision of the Commission in this area suggests that the two-stage test set forth in *United Brands* remains the relevant analytical framework for assessing whether a price is excessive. In this case, *Scandlines Sverige AB v Port of Helsingborg*, the Commission recalled that evidence of an “excessive” profit margin was not sufficient in itself to establish an abuse.⁴¹ It underlined that it was bound to prove the existence of an “unfair” price pursuant to the second limb of the *United Brands* principle. Arguably, this is where the “integrated” benchmarking approach becomes relevant.

2. *The practical difficulties of applying the case law standards in an IP licensing context*

Excessive pricing is one of the most controversial issues in the field of EC competition law. In addition to the valid argument that competition authorities and courts should not engage in price control, one reason for the controversial nature of this area of the law lies in the insuperable practical difficulties encountered in ascertaining whether a price is excessive, and the potentially enormous consequences of an erroneous determination.⁴² The intricacy of

than those charged in other Member States and where a comparison of the fee levels has been made on a consistent basis, that difference must be regarded as indicative of an abuse of a dominant position”. See also Case 30/87, *Corinne Bodson v SA Pompes funèbres des régions libérées* [1988] ECR 2479. In *Bodson*, the Court stated that, in order to determine whether prices are unfair, “it must be possible to make a comparison between the prices charged by the group of undertakings which hold concessions and prices charged elsewhere”. This test had already been implicitly referred to in Case 78/70, *Deutsche Grammophon v Metro SB* [1971] ECR 487.

³⁹ See Case 226/84, *British Leyland Public Limited Company v Commission* [1986] ECR 3263, paras. 27-28, where the Court recalled (along the lines of the language used in *United Brands*) that a price is excessive where it is “disproportionate to the economic value of the service provided”. However, the Court concluded that the dominant firms’ prices were excessive because the price differential between the various services in question was not proportionate to the minimal cost differences between several services. A similar standard had already been applied in Case 26/75, *General Motors v Commission*, [1975] ECR 1367, para. 12.

⁴⁰ The lack of clarity of the case law is further aggravated by isolated rulings applying a different methodology. See, e.g., Case T-89/98, *National Association of Licensed Opencast Operators (NALOO) v Commission*, [2001] ECR II-515, para. 72. In this case, the CFI applied an “efficient demand” benchmark, i.e., it checked whether the dominant firm’s efficient customers could still achieve profits without suffering a competitive disadvantage.

⁴¹ Commission Decision of 23 July 2004, Case COMP/A.36.568/D3 – *Scandlines Sverige AB v. Port of Helsingborg*. This decision arose from a complaint brought by Scandlines Sverige AB, a ferry operator active on the Helsingborg (Sweden) – Elsinore (Denmark) route, according to which the pricing policy of the port of Helsingborg infringed Article 82. At paragraph 158 of the decision, the Commission states: “In any event, even if it were to be assumed that the profit margin of HHAB [the dominant firm] is high (or even ‘excessive’), this would not be sufficient to conclude that the price charged bears no reasonable relation to the economic value of the services provided. *The Commission would have to proceed to the second question as set out by the Court in United Brands*, in order to determine whether the prices charged to the ferry operators are unfair, either in themselves or when compared to other ports” (emphasis added).

⁴² These difficulties have been acknowledged by Philip Lowe, Director General of DG COMP: “On exploitative abuses, there is widespread criticism, some of which we concur with. For example, it is extremely difficult to measure what constitutes an unfair or excessive price”. Speech delivered by Philip Lowe at the Fordham

ascertaining the “correct” or “competitive” price for a given product is exacerbated in the case of intangible assets such as IP.⁴³ In substance, four main criticisms have been put forward by competition lawyers and economists.⁴⁴ These are discussed below.

a. Finding an adequate cost measure

For the purposes of applying the first limb of the *United Brands* standard, a major difficulty lies in the determination of the dominant firms’ costs which need to be taken into consideration.⁴⁵ Economic theory suggests that the appropriate cost measure is the dominant firms’ marginal cost (“MC”), or its average variable cost per unit (“AVC”).⁴⁶ However, for obvious reasons it would be nonsensical to use these cost benchmarks in an IP licensing context. While innovation generates very high fixed costs, the MC and AVC of granting a single licence are indeed equal or close to zero. Alternative cost benchmarks must therefore be found.

In that respect, the relevant cost measure should probably factor in the R&D expenditures of the dominant firm. But this again would raise considerable difficulties. First, there is the question of which R&D costs should be taken into account. Considering only the R&D costs directly linked to the development of a given technology would be under-inclusive, as innovative firms usually have to engage in dozens of research projects to develop one successful technology.⁴⁷ The costs of failed projects would thus have to be taken

Antitrust Conference in Washington, D.C., 23 October 2003, available at http://ec.europa.eu/comm/competition/index_en.html. See also Emil Paulis, “Article 82 EC and exploitative conduct”, this Volume (“Determining whether a price is excessive may also involve difficult comparisons with whatever useful ‘benchmark’ prices can be identified. Some of the problems involved in these comparisons – for example, the issue of cost allocation in multi-product firms – are also present for other price-based abuses. However, when these problems are ‘solved’ for the other abuses, the price/cost question becomes relatively ‘simple’ in that the issue is whether the price is higher or lower than some well-defined cost measure. To determine whether excessive pricing has taken place, there is another layer of complication since it has to be decided whether a price – which may be higher than all relevant cost measures – is in fact too high. According to many commentators, such a decision will necessarily be somewhat arbitrary, unless one takes the rather draconian position that any price over some well-defined cost benchmark is excessive.”)

⁴³ For surveys of the theoretical literature, see Morton Kamien, “Patent Licensing,” in Robert Aumann and Sergiu Hart, eds., *Handbook of Game Theory with Economic Applications*, Vol. 1, pp. 331-54, North-Holland, 1992. See also Susanne Scotchmer, “Licensing, Joint Ventures, and Competition Policy,” in Susanne Scotchmer, *Innovation and Incentives*, MIT Press, 2004.

⁴⁴ For a full account of these criticisms, see David Evans and Jorge Padilla, *supra* note 23. See also Alexandre De Streel and Massimo Motta, “Excessive Pricing and Price Squeeze under EU Law” in Claus-Dieter Ehlermann and Isabela Atanasiu, eds., *European Competition Law Annual 2003: What is an Abuse of a Dominant Position?*, Hart Publishing, 2005, pp. 91 *et seq.*

⁴⁵ In addition, dominant firms often have difficulties in providing data on their costs. See Manuel Martinez, “Some Views on Pricing and EC Competition Policy”, mimeo, at p. 6. Available at: <http://ec.europa.eu/comm/competition/>.

⁴⁶ Economists also refer to AVC as the incremental cost of production. See O’Donoghue and Padilla, *supra* note 21, p. 614. The relevant questions, then, are: whether to allocate common costs (general expenditures), indirect costs, etc.; and what share to assign to each.

⁴⁷ See Technology Transfer Guidelines, *supra* note 8.

into account.⁴⁸ Another difficulty arises from the fact that R&D expenditures are typically “common costs” when the dominant firm is also active on downstream manufacturing markets.⁴⁹ Hence, while only part of the R&D costs should be allocated to licensing activities, finding an adequate method of allocating between manufacturing and licensing activities may prove insuperable.⁵⁰ Finally, on technology markets where “incremental innovations” (minor evolutions of existing technologies) are protected by IPRs, the question arises whether the R&D expenditures incurred for the existing technology should be factored into the analysis.

b. Setting the level where a profit becomes “excessive”

The definition of what constitutes an “excessive” profit in the meaning of the first limb of the *United Brands* standard also lacks clarity. The Commission and the Courts have indeed (rightly) omitted to quantify a threshold above which profits become excessive. The case law nonetheless indicates that dominant firms will only be sanctioned when their profit margin is “grossly exorbitant”.⁵¹ A common thread to all the cases is that Article 82 has been applied only when prices exceeded costs by more than 100% of the value of the product/service in question.⁵²

Yet, in the particular case of dynamic industries, such a margin in respect of the dominant firms’ profits is still overly restrictive.⁵³ First, the innovation process is akin to a painful “trial and error” process. As noted above, firms generally experience a number of setbacks prior to obtaining a successful patent which can be licensed. Worse, innovators often incur huge R&D investments which never lead to the award of a patent and even when a patent is granted there is no guarantee that it will be commercially significant.⁵⁴ The upshot

⁴⁸ See Paulis, *supra* note 42 (“[I]nvestment costs should be taken into account when determining whether prices are excessive”).

⁴⁹ This point has also been made by Steven Anderman and John Kallaugh, *Technology Transfer and the New EU Competition Rules – Intellectual Property Licensing after Modernisation*, Oxford University Press, 2006.

⁵⁰ See Michal Gal, “Monopoly Pricing as an Antitrust Offense in the U.S. and the EC: Two Systems of Belief About Monopoly?” 49 *Antitrust Bulletin*, 343-384 (2004). See also the practical difficulty underlined in Shigeki Kamiyama, Jerry Sheehan and Catalina Martinez *Valuation and Exploitation of Intellectual Property*, STI Working Paper 2006/5, at p. 13: “[A]ccounting guidelines and corporate disclosure rules do not require firms to break out IPR-related revenues from other sources of income”. Paper available at: <http://www.oecd.org/dataoecd/62/52/37031481.pdf>.

⁵¹ See Eric Pijnhacker Hordijk, “Excessive Pricing under EC Competition Law; An Update in the Light of ‘Dutch Developments’”, in Barry Hawk, ed., *Fordham Corporate Law Institute*, 463, 474 (2002). See also John Temple Lang and Robert O’Donoghue, “The Concept of an Exclusionary Abuse under Article 82 EC”, *GCLC Research Papers on Article 82*, July 2005, mimeo. Temple Lang and O’Donoghue explain at page 39 that Article 82 EC “arguably applies only in cases where there are significant barriers to entry that cannot be overcome by investments in anticipation of monopoly rents”. Their paper is available at: <http://gclc.coleurop.be>.

⁵² See Pijnhacker Hordijk, cited in previous footnote.

⁵³ This of course assumes that an adequate cost measure can be found.

⁵⁴ This ties in to the difference between rents and quasi-rents. As pointed out by Sidak, *supra* note 33, “the latter is the risk-adjusted return to sunk investment made in risky activities; it may look excessive ex post, but only because one already has turned the cards over and knows with certainty what was unknown at the time that bets had to be laid”.

of this is that when firms hold successful patents, setting royalties well in excess of R&D costs is a perfectly rational and efficient pricing policy, which compensates for failed R&D investments and provides, in turn, incentives for further risky investment.⁵⁵

Moreover, determining whether a price is “excessive” would make it necessary to forecast the market evolution when appraising dominant firms’ profits. It is when a market grows fast that concerns about excessive profits typically arise (as royalties are often generally computed *ad valorem* on the basis of sales achieved by the licensee).⁵⁶ However, the final level of profit is very often more limited than initially expected. The erosion of profits due to a fall in market demand is also compounded by the limited lifetime of innovations, which may be shorter than the life of the relevant patents due, for instance, to rapid technological obsolescence, the entry of new firms on the technology market, etc. In other words, the royalties charged by licensors may generate substantial profits, but only for a period of time, which will be limited and of uncertain length, and thus hard to evaluate by competition authorities and courts seeking to determine whether a royalty is excessive within the meaning of *United Brands*.

c. Identifying the appropriate benchmarks

In the context of IP licensing transactions, the various benchmarks that have been applied by the Commission and the EC Courts to determine whether a price is “unfair”, pursuant to the second limb of the *United Brands* standard, are seriously flawed. The deficiencies of these benchmarks are discussed below.

The historical costs benchmark. In *British Leyland*, the ECJ undertook a comparison between the prices of the dominant firm and the prices it had charged in the past.⁵⁷ The Court found that the fees had increased 600% during the relevant period, and on this basis it considered the fees to be abusive. The application of this principle to dynamic markets could prove dangerous. First, the availability of an equivalent comparator in the past is not guaranteed, as an IPR is *ex hypothesi* unique. A comparator could arguably be found in expired licence agreements for a similar technology which have been replaced by new licence agreements with different royalty provisions. However, in such case, competition authorities and courts run the risk of comparing apples and oranges, i.e., they risk comparing licence terms and conditions negotiated in the context of different market situations. In a number of dynamic industries, IP holders interested in fostering the uptake of their technology may initially opt for a low-royalty policy (a strategy called “penetration pricing”). At a later stage, when the technology is well implanted and mature, licensors may then seek to increase their royalty rates in order to recoup part of the low prices charged in the past.

⁵⁵ For a similar argument, see Anderman and Kallaugh, *supra* note 49, at § 10.17, p. 273.

⁵⁶ See Gu and Lev, *supra* note 31 at p. 4. The authors note that markets for patents are expected to grow fast.

⁵⁷ See *British Leyland Public Limited Company v Commission*, *supra* note 39. See also Frank Fine, *The EC Competition Law on Technology Licensing*, Thomson – Sweet & Maxwell, 2006, at § 6.13, p.124.

The geographic benchmark. In *United Brands* and *Bodson*, the ECJ compared the prices of a given product over different neighboring markets. However, it is unclear whether a similar methodology should be applied to IP licensing transactions. While geographic benchmarking assumes the identification of distinct geographic markets, technology markets will often be EU-wide or worldwide, thereby rendering the identification of separate geographic markets impossible.⁵⁸ In addition, if local markets are delineated, the crux of the problem lies in finding two (or more) equivalent or at least comparable markets, a situation which is unlikely to occur in practice. Finally, if the royalty price on the compared market is itself excessive, bringing evidence of an abuse will simply become impossible.⁵⁹

The competitors benchmark. There are both conceptual and practical objections to comparing the royalty charged by dominant firms with the royalties charged by its competitors. As seen above, IP rights, unlike the bananas at stake in *United Brands*, present *ex hypothesi* unique features. It thus seems difficult to identify one or several IP holders with a comparable patent or set of patents for the purpose of determining the excessive character of the dominant firm's pricing policy.⁶⁰ But even assuming that two firms had comparable IP, the differences in the royalty rate charged to their respective licensees would not signal that the firm with the higher rate has committed an abuse. Indeed, as will be discussed below, because each instance of licensing negotiations is unique and typically provides for other forms of consideration in addition to a royalty (e.g., cross licenses, etc.), no inferences can be drawn from differences in royalty rates without an in-depth look at the other terms and conditions in the licensing contract.

C. Excessive royalties in the context of standardization

One interesting question is whether the above analysis should be different when proprietary technologies have become part of a standard. As we have seen above, by ensuring compatibility between products, standardization generates significant welfare benefits. However, achieving product compatibility through standardization usually entails making choices, the effects of which will represent a cost. While standards increase downstream competition between implementers, they may also constrain the choice between technological options and reduce competition between technology developers.⁶¹ Moreover, when the technologies involved are covered by IPRs, the adoption of standards may also raise issues

⁵⁸ See Anderman and Kallaughner, *supra* note 49, at § 10.17, p. 273.

⁵⁹ See O'Donoghue and Padilla, *supra* note 21, at p. 617.

⁶⁰ See Maurits Dolmans, "Standards for Standards", 26 *Fordham International Law Journal* 163, 202 (2002).

⁶¹ On the other hand, standardization promotes competition within a standard, i.e. between products implementing the standard. See Teece and Sherry, *supra* note 17, at 1915.

related to access.⁶² As standards often include proprietary technologies, those wishing to implement a standard should obtain licences from all the essential patent holders.

Given the significant stakes frequently involved, the outcome of the discussions over which technologies should be incorporated into any given standard has occasionally strained the standard-adoption process.⁶³ Some tension is inevitable as each firm desires to promote its own solutions as part of the standard but also needs to work together with other SSO members to develop, establish, endorse, and promote the standard.⁶⁴ Another factor contributing to SSO tensions relates to the fact that firms involved in standard-setting often wear different “hats” corresponding to the fundamentally different business models they adopt.⁶⁵ As Geradin and Layne-Farrar have shown elsewhere, firms participating in standardization activities do not necessarily share symmetrical incentives.⁶⁶ While, for instance, pure innovators (e.g., firms which do not engage in manufacturing activities) are entirely dependent on licensing revenues to continue their operations, vertically-integrated operators may be more interested in protecting their downstream manufacturing operations through cross-licensing than they are in collecting royalties on their essential IP.

In light of these widely acknowledged tensions, most formal SSOs have written IPR policies whose primary goal is to ensure adequate disclosure and subsequent availability through licensing of IP rights incorporated into a standard.⁶⁷ Although their scope may vary significantly across SSOs, the procedures put in place usually seek to encourage essential IP owners to make their proprietary inventions known and available to other SSO members and/or other implementers of the standard.⁶⁸

To this effect, most SSOs encourage IP owners involved in standardization to disclose upfront, i.e., prior to the adoption of a standard, the IPRs that they consider may be “essential” for its implementation.⁶⁹ Once disclosure is made, or contemporaneously with disclosure, IP owners are typically asked to provide an assurance or undertaking that, should their IP turn out in fact to be essential for the final standard, they will make licences to that IP available on fair, reasonable and non-discriminatory (FRAND) terms and conditions to other

⁶² See Carl Shapiro, “Setting Compatibility Standards: Cooperation or Collusion?” in Rochelle Dreyfuss, Diane Zimmerman and Harry First, eds., *Expanding The Bounds Of Intellectual Property*, Oxford University Press, 2001, at Section III.

⁶³ For case study examples, see Brian DeLacey, Kerry Herman, David Kiron and Josh Lerner, *Strategic Behavior in Standard-Setting Organizations* (2006), available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=903214.

⁶⁴ See Shapiro, *supra* note 62, at 1-2.

⁶⁵ See Teece and Sherry, *supra* note 17, at 1929.

⁶⁶ Damien Geradin and Anne Layne-Farrar, “The Logic and Limits of Ex Ante Competition in a Standard-Setting Environment”, 3(1) *Competition Policy International* 78 (2007).

⁶⁷ See Lemley, *supra* note 11 at 20-21.

⁶⁸ *Id.*

⁶⁹ ETSI defines “Essential IPR” as meaning “that it is not possible on technical (but not commercial) grounds, taking into account normal technical practice and the state of the art generally available at the time of standardization, ... [to] comply with a standard without infringing that IPR.” ETSI IPR Policy (version of 23 November 2005), Article 15.

members of the SSO and, as is often the case, to outsiders.⁷⁰ Most SSOs do not *require* such commitments – which could be interpreted as compulsory licensing – but if the owner of potentially essential IP seeks to have its technology included in a standard it has a strong incentive to provide the SSO with the assurance that it will license on FRAND terms and conditions.

A *FRAND* commitment is intended to prevent an outright refusal to license or the setting of royalty rates and other terms and conditions so unusually high as to suggest an intent by the IPR owner to do indirectly what it has committed not to do directly, i.e., refuse to license its essential IP to other firms (a constructive refusal to license). The FRAND commitment therefore entails a promise by the IP owner that it is prepared to engage in good faith negotiations with any company wishing to implement the standard with a view to reaching a licensing agreement that will be defined in light of all circumstances prevailing between the two parties at the time of the negotiations.

While SSOs have significantly contributed to the development of, and the growing competition within, high technology sectors, some commentators nonetheless believe that the current disclosure and FRAND licensing commitments are inadequate or ill-tailored to meet current needs.⁷¹ They argue that standardization allows essential IP holders to act opportunistically and that commitments to license on FRAND terms are not sufficient to prevent such opportunistic behaviour (point 1 below). This has led some scholars and firms to reinterpret FRAND as imposing some constraints on the ability of patent holders to monetize their essential IP (point 2).

1. *The hold up problem*

One of the criticized pitfalls of the current FRAND regime is the alleged risk that owners of IP essential to a standard will be able to unduly capture some of the economic value that may be attributable not to the intrinsic value of those rights but to standardization itself.⁷² It is argued that if members of an SSO had known, prior to a standard being set, the terms under which essential IP owners would license their rights, they might have chosen an alternative technology (provided, of course, such alternative technology existed – which is not a given⁷³). But once the standard has been adopted and implemented, switching to an

⁷⁰ See Lemley, *supra* note 11, at 26. The ETSI IPR Policy, for example, provides that IPR holders should be rewarded properly, explicitly recognizing that they “should be adequately and fairly rewarded for the use of their IPR”. See ETSI IPR Policy, cited in previous footnote, Article 3.2.

⁷¹ See, e.g., Gil Ohana, Marc Hansen and Omar Shah, “Disclosure and Negotiation of Licensing Terms Prior to Adoption of Industry Standards: Preventing Another Patent Ambush”, 24 *European Competition Law Review*, 644 (2003); Robert Skitol, “Concerted Buying Power: Its Potential for Addressing the Patent Holdup Problem in Standard Setting”, 72 *Antitrust Law Journal*, 727 (2005).

⁷² See Lemley and Shapiro, *supra* note 5.

⁷³ See Teece and Sherry, *supra* note 17 at 1938-39 (“Whether the SSO would have in fact adopted another alternative had it known of the patent claims raises a complex counterfactual question: ‘What would the SSO have done if the world had been different?’ The answer is likely to be hotly debated, and depends on the particular facts of the standard at issue. The greater the advantages of the (patented) standard over the

alternative technology may have become too onerous for those practicing it. The argument continues that the bargaining power of the owner of essential IPRs will have thus increased and that it may be able to extract more favourable licensing terms following standardization than would otherwise have been the case.⁷⁴ This phenomenon, which can be described as *ex post* opportunism, would lend credence to the need to control the level of royalties charged by holders of essential IP.

Attractive at first blush, the theory of *ex post* opportunism overlooks several critical issues. The first is that this theory is based on the premise that alternative technologies existed at the time of adoption of a particular standard *and* that the successful technology would not have been chosen due to the licensing disparity.⁷⁵ In many instances of standard development, however, no sufficiently attractive alternative technology exists. In the absence of substitute technologies, it cannot be argued that the standard-setting process gives additional market power to the IP holder: the technology had no competition either before or after the vote on standards is held. Such market power already existed prior to adoption of the standard and is due to the uniqueness of the technology in question. Fundamental economics maintains that firms with a unique product or IP will be in a stronger position than those with products or IP for which alternatives exist. The fact that the IP is embedded in a standard does not confer additional market power. Instead, what standardization might do is increase the value of the IP by allowing its holder to collect royalties on larger volumes of products complying with the standard, but this is a direct consequence of the adoption of a standard rather than of any opportunistic behaviour on the part of the patent holder.

As noted above, firms holding patents relevant for a standard also face a number of important constraints. Regardless of whether the patented technology faces viable substitutes, its licensing price is constrained by the prices commanded by complementary patents within the standard.⁷⁶ That is, patent prices are limited by their context. In addition, patent holders without any downstream operations (upstream firms) are constrained by the elasticity of demand for the standard-compliant product in the end market.⁷⁷ While vertically-integrated firms can have incentives to raise the prices paid by rival downstream firms through their licensing terms, they may also be open to cross-licensing agreements with other integrated companies, which can hold down royalty rates as well.⁷⁸ And lastly, all firms face dynamic constraints inherent to the formal standard-setting process. Because standards evolve over

alternatives that were considered and rejected at the time the standard was originally set, the less likely it is that an alternative would, in fact, have been chosen.”)

⁷⁴ Doug Lichtman, “Patent Holdouts in the Standard-Setting Process”, *University of Chicago, Law and Economics Olin Working Paper* No. 292, 2006; Shapiro, *supra* note 63 at 19-20.

⁷⁵ See Teece and Sherry, *supra* note 17 at 1939.

⁷⁶ See Geradin, Layne-Farrar and Padilla, *supra* note 6.

⁷⁷ Klaus Schmidt, *Licensing Complementary Patents and Vertical Integration* (Nov. 2006), available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=944169.

⁷⁸ Note, however, that royalty free cross-licenses between vertically-integrated firms do not ensure lower prices to consumers, as those firms will have to recover their R&D costs in addition to the other costs they incur (e.g., from manufacturing) in their prices to consumers.

time, and because many high technology standards pass through multiple versions (for instance, mobile telecommunications is currently passing through its “third generation” (3G), with successive generations already under development), any unreasonable pricing or abuse of market power can be punished in future iterations of the standard.⁷⁹ Firms that act opportunistically in today’s version of a standard may find their technologies excluded, avoided, or at least minimized in votes on tomorrow’s version of the standard.

Another overlooked issue relates to the question why, if standardization increased the value of a given IP, the essential patent holder should not capture part of that value. The implicit assumption in the *ex post* opportunism claim is that all of the additional value created by the standardization process *improperly* accrues to patent licensors. But formal standardization is a costly cooperative effort that requires both innovators and implementers. There is no reason to assign all of the rents to one or the other. Thus, while owners of IP may benefit from a broader adoption of their technologies, implementers — as well as consumers — also benefit from the opportunity to gain access to and use innovative superior technologies. This sharing of benefits helps to ensure participation incentives.

Leaving the above considerations aside, for a royalty rate to be considered excessive under Article 82(a), the test established by the ECJ in *United Brands* must be met and the fact that the price of essential IP may have somewhat increased as a result of standardization plays no part in this test. If at all, the fact that royalties may have been increased as a result of standardization would add a further element of complexity in the application of the *United Brands* test, as it would require a determination of what would have been the “appropriate” level of a given royalty “but for” the fact that the technology in question had benefited from standardization.

2. *Royalty stacking*

Royalty stacking as a theoretical concept can be explained simply. A firm wishing to produce a good, especially one embodying a technical standard, typically needs to acquire rights to the intellectual property underlying the good. When that good is comprised of multiple complementary components, each of which is necessary for production and each of which is covered by patents held by separate firms, the aggregate royalty fees for licensing all of the required pieces can, it is sometimes suggested, add up to a very large amount – perhaps so large that it is no longer economical for the manufacturing firm to make the good.⁸⁰ This can allegedly happen even if each component’s patent is offered on “reasonable” terms. Stacking up so many reasonable terms could lead to an unreasonable sum. Advocates of the royalty-stacking theory have thus made various proposals to tackle it, such as placing a cap on the

⁷⁹ For a discussion of such dynamic and institutional constraints, see DeLacey *et al.*, *supra* note 64.

⁸⁰ See Lemley and Shapiro, *supra* note 5.

aggregate royalty rates that could be charged by essential patent holders, as well as introducing mechanisms to apportion those royalty rates among essential patent holders.⁸¹

In a recent paper, Anne Layne-Farrar, Jorge Padilla and I have shown that the royalty stacking theory as developed by Lemley and Shapiro was not based on serious empirical evidence and rests on assumptions that limit its applicability.⁸² The 3G mobile industry, which was presented by these authors as an example of a sector where royalty stacking prevailed, was and is not in fact characterized by excessive cumulative royalty rates. Our conclusion was that royalty stacking is far less prevalent than assumed. Moreover, as I have also shown in a separate paper, the proposed mechanisms to cap aggregate royalty rates and apportion royalties among patent holders find no basis in law or economics, and their main objective is in fact to hurt firms operating under a licensing business model.⁸³

Many firms – such as pure manufacturers (which do not have significant IP but need to have access to technologies developed by others) or vertically-integrated operators (which do have significant IP but may make their profits downstream) share an interest in seeing a decrease in royalties. This would save them costs and, in the case of vertically-integrated operators, would eliminate competitors in future innovation races. However, while there is no evidence that any savings on royalties they could achieve would necessarily translate into lower customer prices (as this depends on a number of factors such as the level of competition on downstream product markets), drastic cuts on royalties would effectively eliminate firms whose innovation is mainly funded by licensing revenues.

But even if royalty stacking were an issue, no rational interpretation of Article 82(a) could force a firm to reduce its royalty rates on the ground that these rates combined with the rates charged by producers of complementary inputs (i.e., other licensors) would make the price of the product for which these inputs were needed unreasonable. If, for instance, an automobile maker decided to construct a car whose components (Daimler Benz chassis, Ferrari engine, and Rolls-Royce interior design) were so expensive that its price would make it un-sellable, there would be no legal basis for it to claim that the makers of these components should cut their respective prices to a level that would make the car sellable. *Mutatis mutandis*, the fact that – for good or bad reasons – a standard is based on such a wide range of proprietary technologies that it is too expensive to implement does not give implementers – most of which participated in the creation of the standard – a claim under Article 82(a) that essential patent holders should reduce their rates to a level that will make the standard less costly to implement. Of course, it is in the standard members' best interests to see the standard become commercially successful, which provides incentives for the IP holders to take other royalty rates into consideration.

⁸¹ See Geradin, *supra* note 4.

⁸² See Geradin, Layne-Farrar and Padilla, *supra* note 77.

⁸³ See Geradin, *supra* note 4.

As pointed out by Bekkers, one of the most significant problems facing standards is their over-inclusiveness.⁸⁴ The efforts of many firms participating in standardization to force their technology into a standard have the effect of making that standard more costly and thus hard to implement. Ensuring greater discipline in terms of what goes in or stays out of a standard offers a more promising solution than placing artificial caps on royalties (and thus profits) of firms that contribute to the value of standards.

3. *The implications of a FRAND commitment*

In light of the discussion above, an interesting question is whether the making of a FRAND commitment by a dominant firm should modify the assessment competition authorities or courts could be called upon to make under Article 82(a). The answer can only be negative. The test to determine whether a price is excessive was developed by the ECJ in *United Brands* and it still represents good law. The test requires a demonstration that “the difference between the costs actually incurred and the price actually charged is excessive” and if this is the case, it must further be shown that the price that has been imposed is “unfair”. The fact that the dominant firm in question has committed to license its essential IP on FRAND terms does not assist in this enquiry, especially since the terms “fair” and “reasonable” are no more specific than the concepts referred to by the ECJ in *United Brands*.

In case of disagreement between an essential IP holder and a potential licensee over whether an offer made by the former is in compliance with its FRAND commitment, the latter is free to seek a contractual remedy. Note, however, that even in this case, the fact that a potential licensee is unhappy with the royalty rate (and/or other licensing terms) proposed by the essential IP holder does not in itself amount to a breach of FRAND. Indeed, a FRAND commitment cannot mean an obligation on the essential patent holder to license its IP at the rate preferred by the potential licensee. Otherwise, claims of unreasonable licensing terms would merely reflect a desire by the prospective licensee to avoid having to take a licence on terms it simply does not like.

Puzzlingly, some authors have argued that the failure of an essential patent holder to make a FRAND offer to a potential licensee could amount to a violation of Article 81.⁸⁵ The reasoning, on this view, is that standard agreements between competitors would (i) fall under Article 81(1) – a position which can be criticized in itself given the pro-competitive features of standardization agreements – and (ii) could only be justified under Article 81(3) provided that essential patent holders make a FRAND commitment as this would be the only means to prevent anticompetitive hold-up. This approach obviously fails to convince. An essential

⁸⁴ See Rudi Bekkers, “Patent drag and stacking IPR fees – Are the IPR policies of standards bodies failing or should we better address excessive technology inclusion?” *Position paper for the High-Level Workshop on standardization, IP licensing and antitrust organized by the Tilburg Law and Economic Center (TILEC)*, Tilburg University at Chateau du Lac, Brussels, 18 January 2007, available at: <http://home.tm.tue.nl/rbekkers/>.

⁸⁵ See Dolmans, *supra* note 60.

patent holder's refusal to offer a licence on FRAND terms would plainly be a unilateral act and it is a fundamental tenet of EC competition law that unilateral acts do not fall within the scope of Article 81.⁸⁶

D. Which markets are candidates for intervention, and should high-tech markets be among them?

"Which markets are candidates for intervention?" is the title of one of the sections of the paper prepared by Emil Paulis for this Workshop.⁸⁷ This is of course a key question, which is explored in this section.

The focus of the Commission's recent efforts to modernize the application of Article 82 is on exclusionary abuses. By contrast, exploitative abuses are entirely left out of the Discussion Paper. This tends to suggest, and this has been confirmed by Commissioner Kroes,⁸⁸ that the Commission's primary concern is with the prevention of exclusionary abuses and the need to adapt current thinking on such abuses to bring it more in line with economic theory. Yet, as clearly expressed by Mr Paulis, the Commission wants to retain the ability to apply Article 82(a) in some markets.⁸⁹ But which markets?

Mr Paulis correctly observes that the primary candidates for intervention against excessive prices are markets with "very high and long-lasting barriers to entry and expansion".⁹⁰ There is no doubt that markets characterized by natural monopolies are obvious candidates for intervention, although in most cases price control will be carried out by sector-specific regulators. But where does this leave us with respect to high technology markets such as the ones where IP licensing tends to prosper? Mr Paulis notes that, in "many markets with considerable investment and innovation, barriers to entry may be high, but not necessarily long-lasting".⁹¹

The way high technology markets have evolved these last twenty years amply illustrates this point. The video game industry, for instance, has witnessed cut-throat competition between firms, such as Nintendo, Sega, Sony, and more recently Microsoft, whose market shares and profits fluctuated depending on which of them had the "must have" consoles and games at any given time.⁹² The mobile telephony industry has similarly gone

⁸⁶ If an act is unilateral, there is no agreement or meeting of minds between two (or more) parties within the meaning of Article 81. See Case 41/96, *Bayer AG v Commission* [2000] ECR II-3383.

⁸⁷ See Paulis, *supra* note 42.

⁸⁸ See Neelie Kroes, "Tackling Exclusionary Practices to Avoid Exploitation of Market Power: Some Preliminary Thought on the Policy Review of Article 82", 29 *Fordham International Law Journal* 593-600 (2005).

⁸⁹ See Paulis, *supra* note 42.

⁹⁰ *Ibid.*

⁹¹ *Ibid.*

⁹² See, e.g., Daniel Rubinfeld, "Competition, Innovation, and Antitrust Enforcement in Dynamic Network Industries" *Address Before the Software Publishers Association* (1998 Spring Symposium) San Jose, California, 24 March 1998, available at <http://www.usdoj.gov/atr/public/speeches/1611.htm>.

through three generation of standards since the arrival of the first handsets and fourth generation standards are about to emerge. While such market evolutions create opportunities for some firms, they may also threaten others. Market shares and profits are unstable. Firms licensing proprietary technologies may draw substantial rents, but these rents are always temporary not only because they may end with the expiry of their patents, but also because such technologies will inevitably be made redundant due to technological innovation (or, in the case of standardization, when old standards are replaced by new ones to reflect such innovation).

It is also interesting to observe that DG Competition has so far never adopted an Article 82(a) decision in a high technology industry. Even in the market for computer operating systems, which is characterized by high rents, the Commission has not sought to apply Article 82(a) – and fortunately so. Its recent efforts to curb Microsoft’s proposed royalties for the licensing of interoperability information does not seem to be motivated by a willingness to control rates on the ground that they would be exploitative, but by a desire to prevent an allegedly exclusionary behaviour from occurring, and to ensure compliance with a prior decision.⁹³

Yet even with regard to markets which would *prima facie* appear to be candidates for intervention, it is suggested that competition authorities should take a number of factors into consideration before launching an investigation of alleged excessive pricing, including the availability of:

- Adequate benchmarks allowing the assessment of whether a price (or for that matter a rate) is excessive. Short of such benchmarks, determining the excessiveness of a price amounts to guesswork;
- An adequate and administrable remedy. As pointed by Mr Paulis, some price remedies may force a competition authority “to come back time and again to the pricing of the dominant firm when cost or other conditions change in the industry”, thereby “finding itself in the situation of a semi-permanent quasi-regulator”;⁹⁴ and
- Sufficient human resources to properly staff such an investigation. Experience with sector-specific regulators shows that price control investigations may take years to complete and absorb considerable resources. Given the limited resources of competition authorities and the conceptual and practical difficulties raised by the application of Article 82(a), a central question is whether it is good policy for an authority to invest its scarce resources in this type of investigation.

⁹³ See Commission Press Release IP/07/269 of 1 March 2007, “Commission warns Microsoft of further penalties over unreasonable pricing as interoperability information lacks significant innovation”.

⁹⁴ See Paulis, *supra* note 42.

IV. The application of Article 82(c) to licensing agreements

Price discrimination seems to be ubiquitous in technology licensing. This is due in particular to the fact that many IP licensing agreements have an element of cross-licensing and the size of the portfolios of potential licensees tends to vary considerably. Moreover, as already noted, a great variety of factors will generally be taken into consideration to set the royalty rate applicable to a given licensee. Thus, forcing licensors to offer identical royalties (or, more generally, identical licensing terms) to their licensees would prevent efficient discrimination and discourage innovation, as licensees would be unable to extract proper value for their own portfolios. Worse, it would introduce undue rigidity in IP licensing and reduce opportunities for licensors and licensees to reach mutually acceptable deals, thus negatively affecting technology transfer and entry into downstream markets.

Against this background, it is nevertheless interesting to explore how Article 82(c) could apply to IP licensing agreements. An immediate difficulty with Article 82(c) is that it does not provide a definition of price discrimination.⁹⁵ It simply states that it is an abuse for one or several firms holding a dominant position to apply “dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage”. The ECJ has extended this notion of abuse to the converse situation of the application of similar conditions to unequal transactions.⁹⁶ Article 82(c) as interpreted by the ECJ thus means that some forms of price discrimination may be regarded as abuses of a dominant position.

The wording of the provision suggests that two conditions must be met for Article 82(c) to apply to a dominant firm’s prices.

First it must be shown that the firm under investigation has applied dissimilar prices to “equivalent transactions”. The evaluation of the equivalence of two transactions is not an easy undertaking, as there are myriad factors that can be invoked to justify differences between two transactions. This is particularly true in the context of IP licensing, where potential licensors and licensees will usually take a wide range of factors into consideration (the level and the mode of calculation of the royalty, the presence or absence of an upfront fee payment, the size of their respective portfolios and the possibility to cross-license, the scope and territorial coverage of the licence, etc.) in their licensing negotiations. Thus, as

⁹⁵ Scholars have, however, provided economic tests helping to identify price discrimination. For instance, in his famed antitrust book, Richard Posner explains that: “Price discrimination is a term that economists use to describe the practice of selling the same product to different customers at different prices even though the cost of sale is the same to each of them. More precisely, it is selling at a price or prices such that the ratio of price to marginal costs is different in different sales [...]”. Posner, *Antitrust Law*, 2nd ed., University of Chicago Press, 2001, at 79-80. This definition is helpful in that it provides an objective criterion, i.e., the presence of different ratios of price to marginal costs (i.e., rates of return), to identify instances of price discrimination. It also suggests that different prices for the same product do not necessarily amount to price discrimination, as such a difference may be justified by cost variations.

⁹⁶ In the context of the ECSC Treaty, see Case 13/63, *Italian Republic v Commission* [1963] ECR 165.

most IP deals do not amount to “equivalent transactions”, differences in prices (royalties) are usually perfectly legitimate. By implication, forcing licensors to offer the same royalty level to all licensees would in fact amount to price discrimination within the meaning of Article 82(c).

Second, Article 82(c) indicates that, as a result of such dissimilar treatment of equivalent transactions, some of the dominant firm’s trading parties must have been placed at a competitive disadvantage *vis-à-vis* others.⁹⁷ Scholarly discussions regarding price discrimination often draw a distinction between “primary line” injury, which affects the dominant firm’s competitors, and “secondary line” injury, which affects one of several customers of the dominant firm by comparison to one or several other customers.⁹⁸ The reference to the placing of the dominant firm’s “trading parties at a competitive disadvantage” clearly indicates that Article 82(c) seeks to prevent “secondary line” injury.⁹⁹ All legal scholars seem to agree on this point.¹⁰⁰ The requirement that competitive disadvantage should occur also suggests that, for Article 82(c) to apply, the dominant firm’s customers should be in competition with each other.¹⁰¹ As a result, for differences in licensing conditions to fall under Article 82(c) they must affect licensees active on the same downstream product market.

The combination of these two conditions strongly suggests that Article 82(c) will be applicable to licensing agreements only in very limited circumstances. The first condition indicated above will not be met in most instances due to the fact that potential licensees will generally not be similarly situated (there will, for instance, be differences in the licensees’

⁹⁷ In fact, the rationale behind Article 82(c) is similar to the primary rationale behind the *Robinson-Patman Act*, a controversial piece of legislation adopted in the US in 1936. See Paul London, *The Competition Solution*, American Enterprise Institute, Washington, D.C., 2005 at p. 136; Domenick Armentano, *Antitrust and Monopoly – Anatomy of a Policy Failure*, 2nd ed., The Independent Institute, 1999, at 167. In the years following the Great Depression, small US retailers argued that large retailers were using their bargaining power with manufacturers to obtain better prices, as a result of which smaller players could not compete. The retailers claimed that, once they were excluded, large retailers would have the power to increase downstream prices at the expense of consumers. To protect small retailers, the US federal legislator adopted the *Robinson-Patman Act*, whose terms compelled manufacturers to justify or eliminate discounts to large retailers through a prohibition of price discrimination practices. Since then, however, the US Supreme Court has shown reluctance to enforce the *Robinson-Patman Act*. For a recent illustration, see *Volvo Trucks North America, Inc. v. Reeder-Simco GMC, Inc.*, 126 S. Ct. 860 (2006).

⁹⁸ See, e.g., Alison Jones and Brenda Sufrin, *EC Competition Law*, 2nd ed., Oxford University Press, 2004, at 411; Jonathan Faull and Ali Nikpay, eds., *The EC Law of Competition*, Oxford University Press, 1999, at § 3.235.

⁹⁹ See René Joliet, *Monopolization and Abuse of a Dominant Position*, Collection scientifique de la Faculté de droit de l’Université de Liège, 1970, at 247.

¹⁰⁰ See Santiago Martínez Lage and Rafael Allendesalazar, “Community Policy on Discriminatory Pricing: A Practitioner’s Perspective”, paper presented at the 2003 Annual EU Competition Law and Policy Workshop - *What is an Abuse of a Dominant Position?*, Florence, at 14; Van Bael & Bellis, *Competition Law of the European Communities*, 4th ed., Kluwer Law International, 2005, at 915; Richard Whish, *Competition Law*, 5th ed., LexisNexis Butterworths, 2003, at 716 and 710.

¹⁰¹ See John Temple Lang and Robert O’Donoghue, “Defining Legitimate Competition: How to Clarify Pricing Abuses under Article 82 EC”, 26 *Fordham International Law Journal* 83, 115 (2002).

patent portfolios and their ability to offer a cross-licence, differences in the scope and geographical coverage of the licences they request, etc.). The second condition, which is more likely to be met in practice since licensees may compete on downstream markets, is only relevant when the first condition has been met, which, as just noted, will not often be the case.

But more generally one may question why dominant licensors would seek to discriminate against similarly situated potential licensees that compete with each other on a downstream market. A key distinction has to be drawn here between vertically-integrated licensors (licensors which are active both in the upstream licensing market(s) and in the downstream product market(s)) and non-vertically integrated licensors (licensors active on the upstream licensing market(s) only).¹⁰²

Non-vertically integrated IP licensors generally have no incentive to price discriminate so as to place one of their licensees at a competitive disadvantage *vis-à-vis* one or several others. Upstream licensors benefit from competition between their licensees because strong downstream competition will usually expand output. As royalties are typically calculated on the basis of downstream sales (e.g., X% of the sale prices of the products manufactured by the licensee(s)), this should benefit the licensor unless it can be shown that fierce downstream competition would depress the prices of downstream products to such an extent that the licensor's royalty revenues would shrink. But even in that case, discriminating between licensees by giving a lower rate (i.e., a cost advantage) to one of them could allow that firm to expand its output and further depress prices. Prices would subsequently increase if the cost advantage in question had the effect of inducing the exit of licensees that have been discriminated against but, again, this scenario would eventually play against the interest of the licensor because it would increase concentration on the downstream market(s). This would in turn enhance the countervailing buying power of the remaining licensee(s) and accordingly constrain the licensor's own market power. This may explain why the number of secondary line price discrimination cases involving non-vertically integrated dominant firms is very limited.¹⁰³ And the source of most of these cases is not the actions of dominant firms but rather protectionist Member State measures designed to maintain or strengthen the dominant position of domestic firms.¹⁰⁴

¹⁰² See Damien Geradin and Nicolas Petit, "Price Discrimination Under EC Competition Law: Another Antitrust Doctrine in Search of Limiting Principles?", 2(3) *Journal of Competition Law and Economics* 479 (2006).

¹⁰³ See, e.g., Case C-18/93, *Corsica Ferries Italia Srl v Corpo dei Piloti del Porto di Genova*, [1994] ECR I-1783; Commission Decision 95/364 of 28 June 1995, *Brussels National Airport*, 1995 OJ L216/8; Commission Decision 1999/199 of 10 February 1999, *Portuguese Airports*, 1999 OJ L69/31; Commission Decision 1999/98 of 10 February 1999, *Ilmailulaitos/Luftfarsverket*, 1999 OJ L69/24; Commission Decision, 98/153 of 11 June 1998, *Alpha Flight Services/Aéroports de Paris*, 1998 OJ L230/10, confirmed by the CFI in Case T-128/98, *Aéroports de Paris v Commission*, [2000] ECR II-3929, and subsequently by the ECJ in Case C-82/01 P, *Aéroports de Paris v Commission*, [2002] ECR I-9297.

¹⁰⁴ See Geradin and Petit, *supra* note 102.

By contrast, market structures where vertically-integrated firms control essential inputs are prone to “secondary line” injury price discrimination.¹⁰⁵ Indeed, vertically-integrated operators generally have a strong incentive to charge a lower price to their downstream operations than to the operations of their competitors. The decisional practice of the Commission and the case law of the Community Courts contain many examples of such discrimination.¹⁰⁶ This may be the reason why one of the leading US treatises on antitrust and IP observes that “[t]he only plausible anticompetitive explanation for [discriminatory licence pricing] is as an act of foreclosure by a vertically integrated monopolist”.¹⁰⁷ Much in the same vein, Swanson and Baumol observe that:

“[While discriminatory license fees will generally not raise significant concern,] [t]here is a subset of cases ... where potentially valid reasons exist for concern about discrimination in license fees for intellectual property: those instances when the owner of the IP uses it as an input in a downstream market where competitors also require the IP for the same purpose. A licensor exercising bottleneck market power that discriminates in licensing in order to handicap its competitors and favor its own downstream sales can create or enhance market power in downstream markets for standard-compliant products and services. By contrast, a pure licensor (even one with monopoly power) will ordinarily lack anticompetitive reasons for engaging in discrimination.”¹⁰⁸

Interestingly, Swanson and Baumol also consider that the risk of foreclosure presented by vertically-integrated licensor “is (or should be taken to be) the principal justification for the RAND nondiscrimination requirement”.¹⁰⁹ The non-discrimination element of FRAND would thus be designed to create a blanket prohibition on royalty rates (or other forms of consideration) leading to discrimination between licensees, but more narrowly to prevent vertical foreclosure by firms active in upstream and downstream markets. These authors then explain that the economics of price regulation provide a pricing principle that can be relied on

¹⁰⁵ *Ibid.*

¹⁰⁶ For instance, in the *Deutsche Bahn* case, Transfracht, a subsidiary of the German railway operator, was active in the carriage of maritime containers to or from Germany passing through German ports. Intercontainer was active in the carriage of maritime containers to or from Germany passing through western ports (i.e., ports in Belgium and The Netherlands). Although they provided a similar service (the carriage of maritime containers to and from Germany), both firms had been charged different prices by Deutsche Bahn for access to the rail infrastructure. The facts revealed, for instance, that the price differences in the case of transport of empty containers ranged from 2% to 77% in favour of Transfracht. The Commission and the CFI thus considered that Deutsche Bahn had infringed article 82(c) by applying dissimilar conditions to equivalent services. The discrimination had the effect of placing the parties operating from western ports at a competitive disadvantage *vis-à-vis* Deutsche Bahn and its subsidiary. See Case T-229/94, *Deutsche Bahn AG v Commission* [1997] ECR II-1689, at para. 93. In support of this, the Commission had gathered evidence that Deutsche Bahn's price discrimination had substantially limited the carriage of containers between the western ports and Germany in favour of imports and exports to and from Germany through the port of Hamburg. See Commission Decision 94/210 of 29 March 1994, *HOV-SVZ/MCN*, 1994 OJ L104/34, recital 254.

¹⁰⁷ See Hovenkamp, Janis and Lemley, *supra* note 9.

¹⁰⁸ See Swanson and Baumol, *supra* note 13.

¹⁰⁹ *Ibid.*

to determine an efficient, non-discriminatory licensing fee for technology. According to this principle, which has been referred to as the *efficient component-pricing rule* (ECPR) or as the *parity principle*, “the price that the IP-holder firm charges itself for the use of its own innovation input equals the price the firm charges customers for a final product using that IP, minus the incremental cost to the IP-holding firm of all other inputs, including capital, used to produce the final product”.¹¹⁰ Swanson and Baumol argue that compliance with this principle is “necessary and sufficient for a license fee to be competitively neutral in downstream markets and, therefore, at least on that basis, a necessary condition for that fee to be nondiscriminatory”.¹¹¹

This strongly suggests that, while price discrimination in IP licensing is usually perfectly legitimate and pro-competitive, particular attention must nevertheless be paid by competition authorities and courts to attempts by vertically-integrated licensors to raise their downstream rivals’ costs by giving more favourable treatment to their own operations.

V. Conclusion

This paper has aimed to show that competition authorities and courts should proceed with extreme caution when facing claims that an IP licensee charges excessive royalties or abusively discriminates between its licensees.

Controlling royalties involves significant theoretical and practical difficulties which should not be underestimated. Placing caps on rates may also produce a range of unintended negative consequences: it may harm innovation (by reducing the profits of firms that make risky investments) and may impede dynamic competition (by decreasing incentives for new firms to enter into licensing markets subject to price control). In addition, as abundantly illustrated by the large number of acrimonious disputes generated by the introduction of price control in regulated sectors, controlling rates is likely to turn competition authorities into quasi-permanent regulators even though they lack the resources to do a good job. This may lead to mistakes with tragic consequences for economic welfare.

In parallel with recent efforts by some firms to force the application of competition rules in the field of IP licensing, significant manufacturing interests have also been funding scholarly papers which propose patent law reforms designed to reduce the protection and the bargaining power of licensors with a view to reducing their ability to obtain adequate compensation for their technologies. One may of course hold the view that society should benefit from lower royalties (as it generally benefits from lower prices). But this would be too simple. No convincing case has been made that lower royalties will automatically translate into lower consumer prices and wider dissemination of valuable technologies. The primary effect of any such proposals is more likely to be a transfer of rents from innovators to

¹¹⁰ *Ibid.*

¹¹¹ *Ibid.*

manufacturers. Whether this is a desirable industrial policy outcome is highly dubious, especially at a time where governments unanimously describe privately-funded innovation as the primary force driving economic growth.