



FRAND licensing

Excessive pricing, re-regulating liberalised sectors and the limits of competition policy

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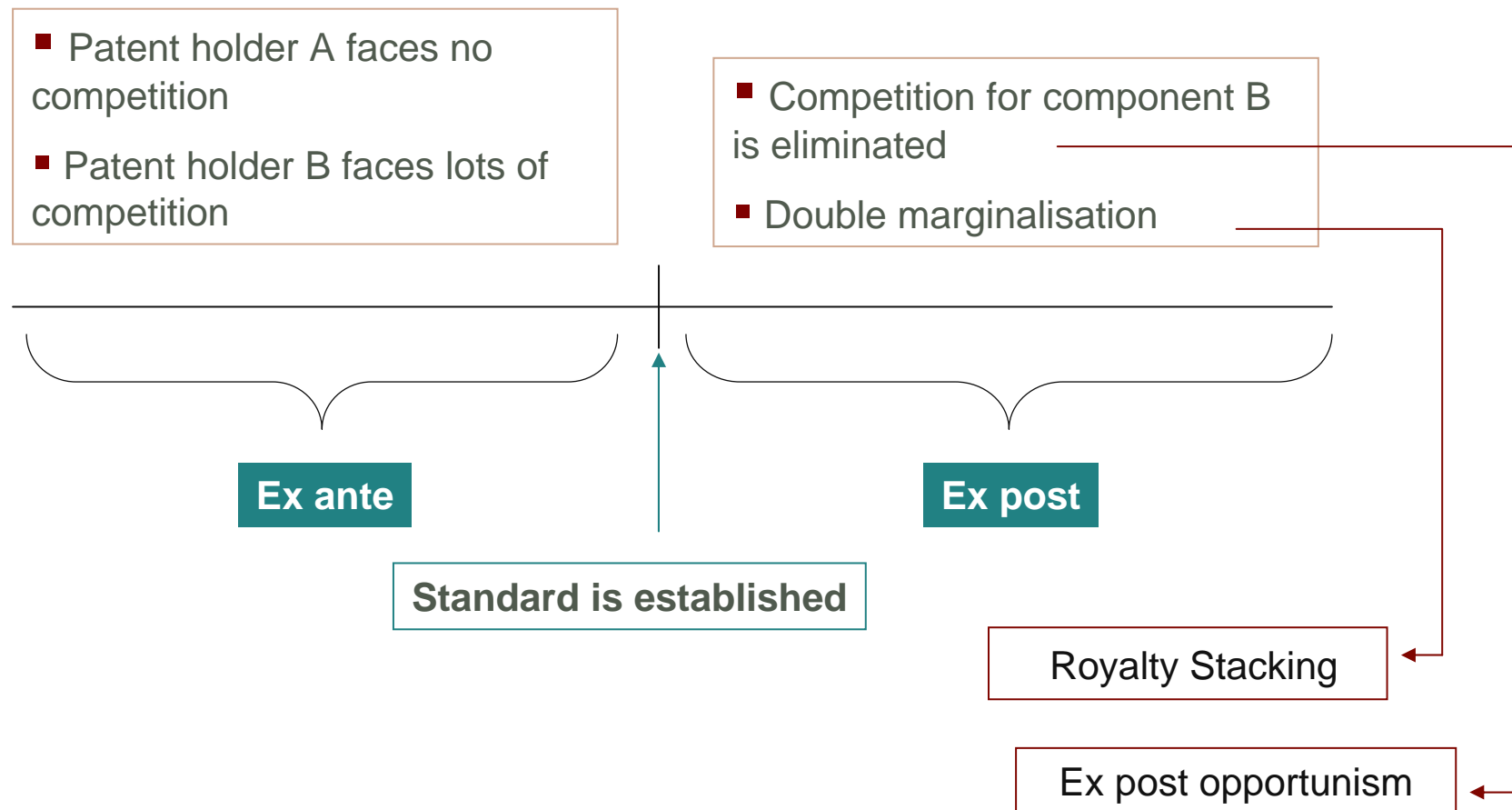


Excessive pricing 2006

- There have been very few Article 82 (a) cases in the past, and most of them were rather special: e.g., *United Brands*, *British Leyland*, *SACEM*, etc. This was also true in other jurisdictions: *NAPP* (excessive pricing plus predation), collecting society cases.
- A year ago, I thought that this would continue to be the case, at least in Brussels: *Port of Helsingborg*. True, there are some open cases, such as those concerning international roaming (DG COMP) and electricity generation prices (Italy and Spain), but I could rationalise them as examples of intervention in “newly” liberalised sectors.
- To my surprise, however, a number of prominent companies have submitted a complaint concerning excessive royalties. Why do I find this surprising? Easterbrook: “a patent holder is entitled to charge whatever the traffic will bear”, *Schor v. Abbott*, July 2006, US Appeals Court, 7th Cir.
- Complainants argue that their case is different ...

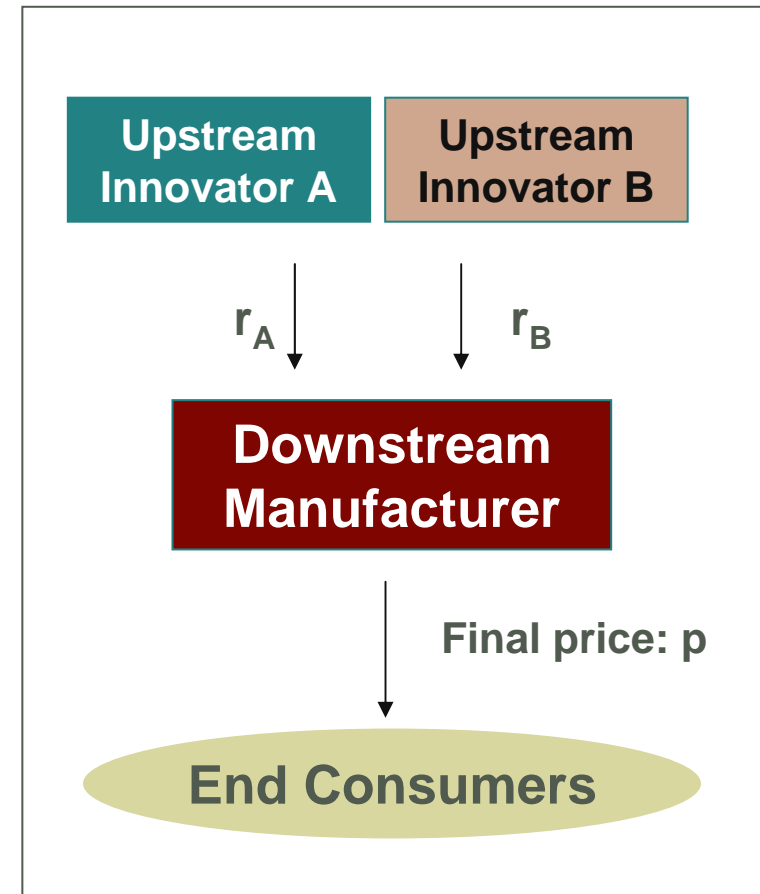
Standardization and market power

- SSOs select among competing technologies to define a standard



Royalty stacking

- Patent holders A and B have patents that are strict complements
- Patent holder A has n essential patents; patent holder B has m essential patents
- Double marginalisation:
 - Anti-commons
 - ART too high
 - Royalty stacking problem is more severe the greater the number of patent holders with essential patents



Fair Reasonable And Non Discriminatory

- SSO's require FRAND commitments.
- Complainants allege that Qualcomm's royalty rates are not FRAND.
- But what is FRAND?
- Complainants proposed what could be termed as *numerical proportionality*
 - An aggregate royalty rate (ART) is defined
 - The royalty rate of each patent holder is given by the relative weight of its patent portfolio. Patent holders A and B will share the ART as follows:
$$\left(\frac{n}{n+m}, \frac{m}{n+m} \right)$$
 - They say this is Fair and Reasonable and refer to SSOs practice.



Numeric proportionality

- Numeric proportionality has all sort of problems.
 - Patents are not born equal.
 - Manipulation – strategic patenting
 - Incentives to join SSOs
 - Underinvestment
 - What about ND?
- Most importantly, it does not address the two problems is meant to deal with (a) ex post opportunism and (b) royalty stacking
 - The ART is not determined - it can be very high
 - Complainants argue that all patents are equally important because they all have the same ex post hold up power
- Is it true that numerical proportionality is widely adopted by SSOs?

Sharing rules: evidence from pools

- Layne-Farrar and Lerner, “To Join or Not to Join: Examining Patent Pool Participation and Rent Sharing Rules,” SSRN, 2006
- 9 recent patent pools concerning high-tech industries
- 1 royalty free pool
- 5 pools with proportionality
- 3 value-based pools

- Symmetric portfolios
- Vertical integration
- Valuable portfolios remain outside the pools
- Maximum pool participation is 58%

Aoki and Nagaoka, 2004

Klaus Schmidt, 2005

Ex ante licensing

- Swanson-Baumol, ALJ, 2005 investigate FRAND licensing in the context of standard setting. Their model involves one patent and one patent holder
- ND – ECPR
- F + R – ex ante auctions, so that the royalty fee charged by the patent holder is a function of the number of competing technologies ex ante as well as their closeness.
- Criticisms:
 - Does not take into account that standards comprise multiple technologies
 - Based on efficiency criteria – FRAND is about fairness
 - Unnecessary
 - Difficult to implement and possibly inefficient

Extending Swanson-Baumol

- Anne Layne-Farrar, A. Jorge Padilla and Richard Schmalensee, “Pricing Patents for Licensing in Standard Setting Organizations: Making Sense of FRAND Commitments”, SSRN, 2006, address the first two criticisms:
 - We extend the Swanson-Baumol ex ante auction model to take into account that standards comprise multiple technologies
 - And investigate whether the extended Swanson-Baumol ex ante rule is fair by characterising how an ART should be split among IP holders with complementary patents using cooperative game theory
 - Shapley values
- We find that both the ex ante auction approach and the cooperative game-theoretic approach imply that each IP holder should be remunerated according to its *incremental contribution* to the standard:
 - Number and quality of ex ante substitutes
 - Technological contribution to the standard (complements)

Do SSOs confer market power in practice?

- Anne Layne-Farrar, Alison Oldale and A. Jorge Padilla, “Do Standard Organizations Confer Market Power”, work in progress, 2006, investigates whether SSOs increase a patent’s citations, and thus its hold-up power.
- We first identify all SSOs that provide public lists of the patents declared as essential for their standards, and then review all of the patents disclosed to these SSOs. After this process, we have 421 patents, for which we collect assignees, prior art citations, number of claims, US patent classes, file and grant years, and forward citations received.
- For these 421 patents, we then construct a “twins” dataset. By construction, the SSO patent and its twin therefore have identical patent citations at the time the SSO patent is publicly linked to the SSO.

Do SSOs confer market power in practice?

- We find that while certain standard organizations do appear to significantly enhance their patents' importance, do not. In particular,
 - Neither the Internet Engineering Task Force (IETF) effect nor the ETSI effect is significantly different from zero.
 - The DVD effect is somewhat larger, at nearly 6 extra citations, but still quite modest.
 - The biggest effects are found in the International Telecommunications Union (ITU) and the Joint Technical Committee (JTC, which covers information technology).



Is there a royalty stacking problem?

- Damien Geradin, Anne Layne-Farrar and A. Jorge Padilla, “Royalty Stacking in High Tech Industries: Separating Myth from Reality”, 2006, investigate whether there is indeed evidence of a royalty stacking problem in the 3G cellular telecom industry.
- They test whether the market value of a telecom company producing high-tech products embedding multiple innovations protected by patents is affected by the degree of concentration of those patent rights.
- They test the royalty stacking hypothesis for two types of 3G telecom companies: upstream or pure-research companies and vertically integrated companies that conduct research and manufacture a good for the downstream market.



Is there a royalty stacking problem?

- The empirical model also controls for other determinants of a company's market value, such as the company's sales, its R&D and patenting activity, as well as possible demand and technology shocks. We also take into account the impact of the R&D and patenting activities of technologically-close rivals.
- Geradin et al. find no relationship between the degree of concentration of the IP rights and market value in the 3G telecom industry. This is true for both upstream and vertically integrated firms.
- Why?
 - IP fragmentation is low: 80% of relevant patents in the hands of 4 patent holders.
 - Royalty stacking theory is not robust.

Is ex ante licensing the solution?

- Ex ante licensing is difficult to implement
 - When is ex ante?
 - Multiple ex ante auctions with asymmetric bidders
- And may not lead to efficient outcomes
 - Discourages efficient dynamic pricing
 - Increases bargaining power of powerful licensors (those needed to kick-start the technology)
 - Discourages participation in formal standard-setting processes
 - It may prove discriminatory by constraining ex-post pricing flexibility



What about Article 82 (a)?

- Is competition policy the right tool to deal with commercial disputes of this sort? I am highly skeptical, because:
 - Competition policy authorities are not good at price regulation, especially in high-tech industries.
 - Economic understanding of these issues is still fairly limited. There are a few theories but almost no empirical evidence.
 - It is not obvious to me that there is a market failure here. On the contrary, innovation in the biotechnology, superconductor, software and telecom industries is alive and well.
 - Complaints reflect fundamental conflicts of interest between R&D-oriented companies and downstream manufacturers and vertical integrated companies.



What about Article 82 (a)?

- If competition authorities are decided to intervene, what criteria should be adopted to distinguish between fair and exploitative royalty rates?
 - *United Brands* test is hard to implement: (a) prices are suppose to exceed costs for patented products and (b) there are no obvious benchmarks.
 - Is ex ante licensing as a valid benchmark? Not really, though it may be used to construct a safe haven.
 - There are legitimate reasons why the ex ante royalty rate may be lower than the ex post rate – e.g., dynamic pricing, dissipation of uncertainty regarding the commercial value of the technology.
 - But evidence that the ex post and ex ante royalty rates may be taken as proof of no abuse.



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